

Contractors and Engineers

magazine of modern construction

NOVEMBER 1957

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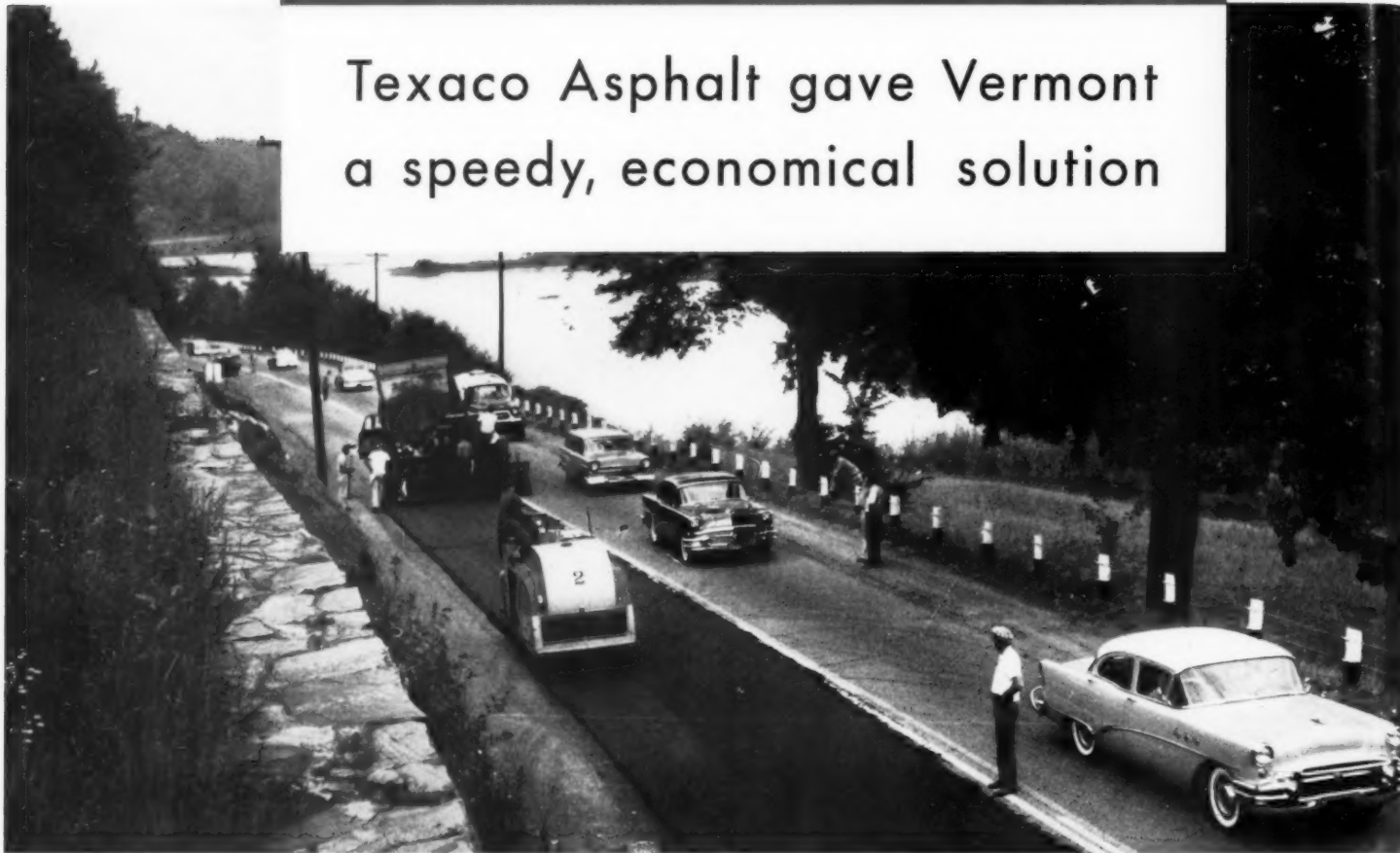
SCIENCES

Boring for bridge footing.
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Traffic outgrew this highway

Texaco Asphalt gave Vermont
a speedy, economical solution



Modernizing US-5 in Vermont with a plant-mixed Texaco Asphaltic Concrete wearing surface, laid without interrupting traffic.

Contractors

Cold River Hot-mix Corporation,
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Frank W. Whitcomb Construction
Company, No. Walpole, N. H.



U.S. Route 5, north of Bellows Falls, Vt., like thousands of miles of American roads, had a bituminous-treated gravel surface.

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base and asphalt surface, down to low-cost asphalt mats for light traffic. Helpful information regarding all of these asphalt types of construction is supplied in two free Texaco booklets. Copies may be secured without obligation by writing our nearest office.



Old bituminous-treated gravel road at right provides an excellent base for new Texaco Asphaltic Concrete surface.

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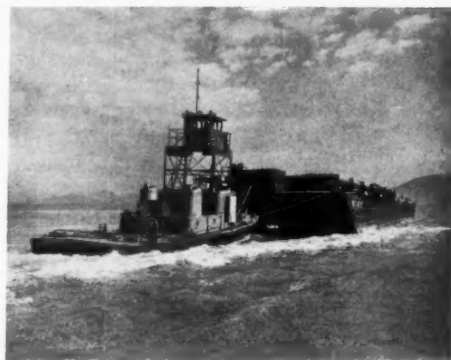
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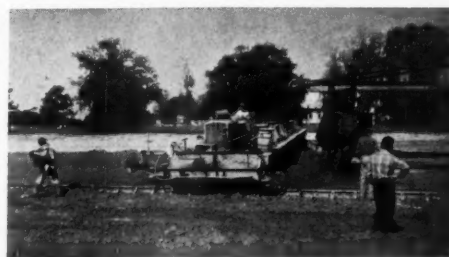
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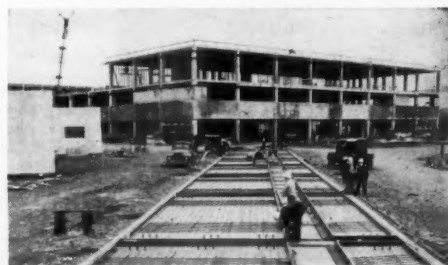
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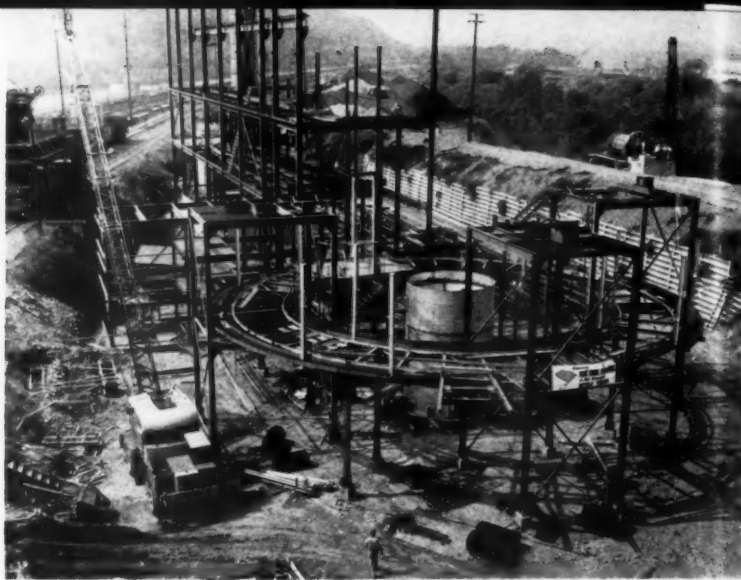
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True values in technology

When the Russians projected their Sputnik into space, a feeling close to inferiority developed almost overnight among some American technologists. We have long been accustomed to being first in so many things that a certain amount of disappointment and chagrin was bound to come out when the "Red Moon" was launched successfully. Our scientists had been discussing and planning a satellite for such a long time, that we were surprised when another country, hitherto silent on the subject, beat us to the punch.

As a dictator state, the Soviet Union can put the entire resources of the nation behind such a project. In this country private enterprise is responsible for the many developments in technology that have advanced the U. S. standard of living. Thus there is nothing to be ashamed of if a "crash" program, directed by a totalitarian government, achieves a goal that was never considered an all-out objective of one branch of our military forces. No one doubts what the answer would be if the people of any country were polled as to whether they would prefer having their own car and television set, or a new moon in the sky.

Putting the automobile and TV set within reach of the average American has been an engineering as well as a manufacturing achievement, according to A. Kingsley Ferguson, vice president of F. H. McGraw & Co., engineers and constructors, Hartford, Conn. Addressing the Brooklyn Engineers Club last month, the former president of H. K. Ferguson Co. pointed out that without the modern, well engineered automotive plants we have today, an automobile would cost five times as



much to produce. And the low-cost television receiver, he added, is a direct result of efficient engineering and manufacturing methods.

Discussing future trends in construction, King Ferguson stated that today's engineer must be "a creative thinker and economic analyst, capable of creating new devices and manufacturing methods which will produce various products at a lower cost." The veteran constructor also predicted that in the years ahead the biggest opportunities for construction men will lie outside the U. S. A.

"We are in the process of a technical revolution," he said, "and this country is taking the place that Great Britain held during the industrial revolution. We must go to foreign areas in order to find and mine many of the important raw materials required for processing into consumer goods. Our finished products must then be sent abroad to other parts of the world to raise the general standard of living."

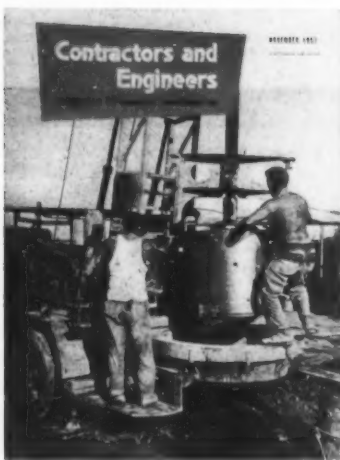
To play the part they should in world affairs, the construction executive urged engineers to have two aims in mind. One should be to acquire a wide knowledge of many fields, including the humanities; the other, to build

more specialized knowledge in one particular field. Both aims are of equal importance if an engineer is to be truly creative.

Making a specific recommendation, Ferguson said that since many overseas engineering assignments require a knowledge of one or more foreign languages, technical men should become conversant in at least one language other than their own. This is an area in which most Americans, not those in the engineering profession alone, are weak.

The language barrier was so frustrating to Mrs. Franklin D. Roosevelt on her recent visit to the Soviet Union that she is now, at 73, studying the Russian language. She vowed she would not make a return trip without knowing the rudiments of basic Russian, reporting that "it is awful to be where you can't understand one word."

With transportation and communication constantly being improved, the peoples of the world are in closer contact with one another than ever before. The engineers and builders of the world must not neglect the opportunities of closer contacts through construction, nor the responsibilities that go with them.



A Calweld Model 150A earth-boring drill comes up with a bucket of clay from a 21-foot-deep hole being put down for one of the cylinder piles that will serve as both footing and column for a bridge on the North Illinois Tollway. A workman guides the drill bucket while the rig operator controls the cable that pulls the bucket off to one side for the dump.

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CONTRACTORS AND ENGINEERS

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Tractor shovel does leg work for crane setting storm sewer

On a tight-quarter \$800,000 storm sewer job in northeast Cincinnati, Ohio, a contractor stepped up production by letting a tractor shovel do the leg work for a crawler crane. Foley Construction Co., Cincinnati, had to lay 6,000 feet of concrete pipe through a residential area that was hemmed in by homes, front lawns, backyards, and trees. In this narrow aisle, Foley had to open a 12 to 28-foot-deep trench through clay and tough shale, then swing in 10-foot lengths of 84 and 108-inch pipe.

Since the contractor had a limited work width, he stockpiled materials single file behind the backfilling crew and at occasional open areas. A Michigan Model 125A tractor shovel, originally used to handle backfill, was given the job of getting the material to the ditch.

Gravel fill for the pipe bed, stockpiled in out of the way spots along the trench route, was hauled and dumped into the trench by the Michigan.

Pipe laying

Pipe sections were stockpiled to the side of the backfilled trench, behind a Lima 2½-yard crane which lowered the pipe into the ditch. Moving pipe from stockpile to trench by crane was slow and often dangerous. Crawling back and forth for each pipe section took too long. If the pipe was swung 180 degrees with a long boom, it often brushed trees and came perilously close to adjacent homes.

To remedy this situation, the contractor had the Michigan position each 15-ton section of concrete pipe alongside the ditch. The tractor shovel operator set the bucket at a dumping angle and picked up the pipe between the upper and lower lips of the bucket. The tractor shovel then eased and rolled the pipe along to feed the crane. The crane picked up the section just about where it fitted into the sewer line, and on one short swing lowered it into the cut.

When not backfilling, hauling gravel, or moving pipe, the tractor shovel freed the crane from other incidental duties. It dragged and positioned the heavy timber skid used by the pipe-setting crane. The operator hooked one end of a cable to the skid and the other to the tractor shovel's bucket. By raising the bucket about six feet off the ground, tilting it backward, and then simply backing off, he dragged the skid to its new position.

The contractor followed a fast-moving work sequence. A 3-yard dragline dug out the trench. When the bottom was at the required elevation, the Michigan hauled and dumped gravel for the pipe bed. While men in the ditch spread and leveled

the gravel, the Michigan nudged a section of pipe up to the Lima crane. The crane lowered the pipe into position and held it securely while it was grouted to the last section laid. Meanwhile, the tractor shovel back-filled about 29 feet behind the crane. Then the unit headed for the gravel stockpile to repeat the cycle.

THE END



After rolling the 15-ton section of 108-inch concrete pipe into position alongside the trench, the Michigan Model 125A tractor shovel holds it steady as workmen rig up the lifting device handled by a Lima crawler crane.

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A view of the cofferdam area of the Markland Locks and Dam shows the batch plant and the general construction area of the \$70 million project being built on the Ohio River. This dam is one of three new high-lift navigation dams and locks which will replace 13 antiquated dams and locks. ▶

The gantry lowers a 3-cubic-yard concrete batch for the middle wall of the double lock facility. Malan vibrators consolidate the concrete. Just in front of the cofferdam is the Johnson batch plant and its conveyor systems. ▼



While the cofferdam cells are being built, Dravo Corp.'s derrick boat 21, equipped with a Daniels-Murtaugh 4-yard bucket, loads excavated material into a side-dumping scow which will be towed to disposal areas downstream.



Before concrete work started, heavy rains caused the Ohio River to rise and forced Dravo to flood the cofferdam. Two Goodyear conveyor belts were partially submerged, and the Johnson batch plant was under water to the mixer floor.

Flood damage repaired, concrete operations get under way. An American R-20 gantry, straddling the concrete hauling tracks, picks up a Dravo-built 3-yard concrete bucket from flat cars being pushed by a Plymouth 42-inch-gage diesel locomotive. Tracks run from the wet batch hopper at the batch plant to both lock chambers.



Derrick boats excavate under water as cofferdam is built for locks, dam

Contractor floods cofferdam when record rainfall

causes Ohio River to rise; unique concrete production

setup gets work back on schedule after brief delay

Using derrick boats to excavate under water, Dravo Corp., Pittsburgh, Pa., saved both time and money on the first stages of construction of the Markland Locks and Dam. With this method of construction on the job, which is located on the Ohio River about 65 miles below Cincinnati, the contractor was able to complete most of the earth excavation inside the cofferdam while it was being built.

This operation not only saved time,

but also reduced the cost of hauling and disposing of excavated materials, since big side-dumping scows were used instead of trucks. After the cofferdam was completed, the construction area was unwatered so that the required line drilling and rock excavation, as well as the concrete lock construction, could be done in the dry.

The \$70 million Markland Locks and Dam, located near Markland, Ind., and Ghent, Ky., is one of three



Since it was on the edge of the cofferdam area, the Allis-Chalmers washer-shaker escaped being covered with water. When operations began, the Naylor Spiralweld pipeline removed sludge from the washer-shaker.

CONTRACTORS AND ENGINEERS

new high-lift navigation dams and locks on the middle Ohio River. Greenup Locks and Dam, presently under construction, the proposed New Richmond Locks and Dam, just upstream from Cincinnati, and the Markland structures will form three long deep pools which will replace 13 of the antiquated Ohio River dams and locks.

Markland, Greenup, and the New Cumberland Locks and Dam are the first steps in a series of projects intended to eventually replace the present 53 Ohio River locks and dams with 20 modern facilities. The overall development is being planned by the Ohio River Division of the U. S. Army Corps of Engineers. Plans for the Markland Locks and Dam were prepared by the Louisville district of the Corps, which is also supervising construction. The project, started in May, 1956, is scheduled for completion in late 1958.

Dravo Corp.'s present \$18.5 million contract includes the construction of a 110x1,200-foot main lock and a 110x600-foot auxiliary lock, together with guard walls, guide walls, and other structures.

Two locks

The two parallel locks are located along the Kentucky shore. The main lock is located riverward of the auxiliary lock. The upper and lower guard walls on the riverside of the approach channels are 1,182 and 1,060 feet long, respectively. The upper and lower guide walls on the land side are 196 and 850 feet long, respectively, exclusive of lock wall transitions. These guard and guide walls, plus the lock walls above and below the gates, provide a minimum mooring length of 1,200 feet for the main lock and 600 feet for the auxiliary lock.

Two sets of hydraulically operated steel miter gates are being provided for each lock. Two electrically operated tow hauling units of the one-drum hoisting engine-type will be provided for the auxiliary lock. The locks provide for a maximum lift of 35 feet.

Filling and emptying the locks will take about eight minutes. The main lock will be filled or emptied through longitudinal culverts in both walls, but the auxiliary lock will be filled and emptied through culverts in the land wall only. The discharge culvert from the auxiliary lock passes under both locks to reach the river.

Lock walls and the lower guide wall are concrete gravity sections founded on solid rock. The upper guide wall and lower guard wall are concrete gravity sections founded on bearing piles driven through the sand fill inside sheet pile cofferdam cells. The upper guard wall is a concrete gravity section supported on sheet pile cells filled with concrete. In this latter section, the sheet pile cells are spaced to permit a cross flow between cells under the wall.

Change creek channel

One of the first construction operations (Continued on next page)

A Caterpillar DW21 scraper, push-loaded by a Cat D8 tractor, excavates the area around the Stevens Creek diversion channel, preparatory to the start of lock construction. The new channel will go around the lock.



Teer's CAT* No. 12s help build approach to Patapsco River Tunnel

An important new highway link for North-South travel is the Patapsco River Tunnel, south of Baltimore, Md. It will create a direct connection between Rt. 40 and U. S. 1 without bucking mid-city traffic.

Nello L. Teer Co. of Durham, N. C., is building a 2½-mile section of the four-lane divided expressway leading to the tunnel. The contract calls for moving 1,200,000 cubic yards of earth. Teer's spread on this job includes 12 Caterpillar DW20 Tractor-Scraper units, six D8s, a D9 and two Cat No. 12 Motor Graders.

Good haul roads contribute to low-cost earthmoving, and keeping roads in shape is a motor grader job. With its rugged construction, balanced design and dependable four-cycle Cat Diesel Engine, the No. 12 is built for top production around the clock. Positive-acting controls, easy blade positioning and excellent job visibility all help the operator do more work with less effort. The exclusive Caterpillar oil clutch operates smoothly many hundreds of hours without adjustment. Tubeless tires, at no extra cost, reduce tire down time. And in-cab starting, electric or gasoline, is standard.

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A McKiernan-Terry 9-B-3 steam hammer and a Manitowoc 3500 crane drive sheeting inside one of the cofferdam cells on which to support a transformer platform.

(Continued from preceding page)

ations was the excavation of a new channel for Stevens Creek to bypass the creek around the lock area. Three Caterpillar DW21 scrapers with a Caterpillar D8 push-tractor made the initial cuts and moved a good deal of the material from the channel to fill areas.

As the channels got deeper and the material wetter, two draglines took over. One of these was a Manitowoc 3500 with a Hendrix 2½-yard bucket; the other crane used a Hendrix 2-yard drag bucket. The draglines loaded a spread of six 22-ton Euclid end-dumps which hauled the material to fill or disposal areas.

In the reservation area where buildings and other facilities are to be provided in the future, the fills were compacted with a Chester sheepsfoot roller pulled by a Caterpillar D8 tractor. A Caterpillar No. 12 motor grader shaped the fills and maintained service roads on the site.

While the channel change was being made, a fleet of floating equipment was being assembled on the job. These rigs went right to work excavating for the locks and approach channels and building the big cellular cofferdam around the construction area.

Build big cofferdam

To enclose the 500-foot-wide × 2,200-foot-long work area adjacent to the Kentucky bank, it was necessary to construct 3,000 feet of cellular cofferdam in the shape of a flat U. Cells in the upstream leg of the cofferdam were 40 feet in diameter, while those in the other two sides were 50 and 56 feet in diameter.

Dravo's floating derricks No. 18 and No. 19 set and drove most of the M-112 sheet piling in the cells. The No. 19 floating derrick, using a Williams 1½-yard clamshell bucket, graded and leveled the areas where the cells were to be placed. No. 18 set and drove the sheeting with a McKiernan-Terry 9-B-3 steam hammer. The sheets were driven to bearing on the rock 16 to 25 feet below water level, and the cells projected high enough above the old pool level to provide a 29-foot freeboard.

Since the new locks cross the old dam, which has locks on the opposite side of the river, it was necessary for the cofferdam to cut off a portion of

the old dam. The old dam is of the hinged wicket-type, which can be lowered to lie flat on the river bottom to pass flood flows. The control wickets near the Kentucky shore were cut off at the start of the cofferdam construction, making it more difficult to control the upper pool during this stage of construction.

In the vicinity of the old dam, the river had cut its bed right down to solid rock, and there was no overburden in which to seat the sheet piles for the cofferdam cells. Using the quick-dumping dirt scows, the contractor dumped about ten feet of dirt on the river bottom in this area and then set the sheet piling for the cells as rapidly as possible.

Once a complete cell had been set, driven down to rock, and filled with

sand, it did not matter if the water washed away the dirt on the outside. This method was successful, and cofferdam construction proceeded without a hitch.

As the cells were completed, the derrick boat 24, equipped with an Erie 3-yard clamshell bucket, filled them with sand. The sand was obtained from river bottom deposits and loaded into barges.

The pile cells for the support of the guide walls and guard walls were built later outside of the cofferdam.

Underwater excavation

While the cofferdam cells were being built, the big derrick boat 21 began excavating the overburden in the lock area. This floating derrick used a Daniels-Murtaugh 4-yard



Excavation for powerhouse at Priest Rapids Dam is over 4,000 feet long and between 40 to 90 feet deep.

It's a \$92,000,000 job— and Texaco helps keep it on schedule

This \$92,000,000 Priest Rapids Dam project is the second largest competitively bid contract ever awarded to a single contractor. It is being constructed by Merritt-Chapman & Scott. There is no time for down-time on a colossal job like this, so Merritt-Chapman & Scott—knowing from past experience the value of a Texaco Simplified Lubrication Plan—started it off by calling in a Texaco Lubrication Engineer to work out a Plan.

This is the most far-sighted step in any lubrication program because it cuts inventory down to

as few as 6 products to handle all major lubrication. That minimizes chances of making lubrication mistakes, and trims your maintenance expense. Above all, the Texaco Simplified Lubrication Plan is a big help in keeping your job on schedule.

Merritt-Chapman & Scott, for example, extend their engines' service period between overhauls with *Texaco Ursa Oil Super Duty Special*. They also get full rated engine power and save on fuel. They get long-lasting chassis protection by using



When the cells are filled, a Caterpillar D8 tractor-dozes levels off the sand and gravel to form a usable working area and roadway along the top of the cells. One of Dravo's derrick boats, background, is excavating the cofferdam area.

lightweight dragline bucket to excavate the river bottom material down to rock.

This waste material was loaded into four side-dumping scows which were towed to disposal areas downstream. Each of these scows, measuring 115 x 27 feet, had a capacity of 200 cubic yards in the three pockets. After the area was dewatered, it was much more economical to remove the material in these big barges than to haul it away in trucks.

Derrick boat 21 worked inside the cofferdam while the cells were being placed and filled until the remaining opening was just large enough to permit her to get out into the river. In this time the derrick boat had excavated practically all of the overburden in the area. When the cofferdam

was unwatered, there was only a small amount of cleanup to be done before the rock excavation could begin.

Other floating rigs excavated in the approach channels and dug sand to fill the cofferdam cells. Two tenders served all of the floating equipment. They were the Dravo No. 44, powered by a Waukesha 125-hp engine, and the Dravo No. 43, driven by a General Motors 125-hp diesel engine. It sometimes took the combined power of both of these boats to move one of the loaded sand barges up against the powerful current.

The Manitowoc 3500, which assisted with the excavation of the channel change and handled other work on shore during the construction of the cofferdam, was converted to a shovel for the rock excavation. The rock was hauled out of the excavation by the 22-ton Euclids used earlier on the channel change.

An American Model 300 motor crane served the construction area and assisted with the handling of forms and other heavy materials. Other machines in evidence during the early stages of the job were an Ingersoll-Rand 600-cfm Gyro-Flo compressor, four McKiernan-Terry 9-B-3 pile hammers, and several Caterpillar D8 tractor-dozers.

To unwater the big cofferdam and keep it dry, the contractor installed three 15-inch vertical turbine pumps driven by electric motors. These pumps were each rated at 5,000 gpm against a head of 50 feet. When the cofferdam was complete, the pumps unwatered it in less than three days.

The major pay items in the contract for construction of the Markland Locks are:

Common excavation	675,000 cu. yds.
Dredging	550,000 cu. yds.
Rock excavation	350,000 cu. yds.
Line drilling	157,000 sq. ft.
Random fill	440,000 cu. yds.
Compacted fill	250,000 cu. yds.
Rock fill	
(bank protection)	350,000 cu. yds.
Sheet piling	
(left in place)	175,000 sq. ft.
Concrete	440,000 cu. yds.

The common excavation item includes the Stevens Creek channel change and the excavation of the overburden above the rock in the lock area. The latter was actually done by underwater dredging in the same manner as the approach channels, which form the basic dredging work. The sheet piling item of 175,000 square feet includes only that which remains in place in the cells of the guard walls and guide walls. Actually, the contractor had more than twice this amount in the cells of the cofferdam.

Flood delays concrete work

After the cofferdam was complete, work went ahead on line drilling and rock excavation. A concrete batch plant was set up inside the cofferdam, and concrete placement was scheduled to begin in mid-April, 1957. But an abnormal rainfall caused the level of the Ohio River to rise to such a high point that the cellular cofferdam



Texaco lubricants are used exclusively on the job by Merritt-Chapman & Scott.

Texaco Marfak. It doesn't pound or squeeze out. Wheel bearings get the same kind of protection from **Texaco Marfak Heavy Duty 2.** It seals itself in, seals out dirt and moisture, and needs no seasonal change. For transmissions and differentials, they use **Texaco Universal Gear Lubricant EP.**

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The Texas Company, 135 East 42nd Street,
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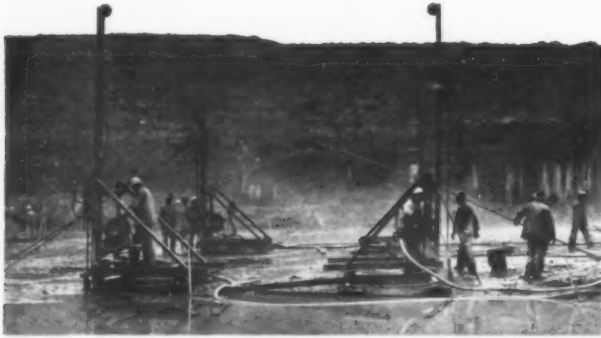
Huge dragline is one of several being used to build Priest Rapids Dam on Columbia River south of Vantage, Wash. All are kept operating at top efficiency with Texaco lubricants.



TEXACO Lubricants and Fuels
FOR ALL CONTRACTORS' EQUIPMENT

For more facts, use Request Card at page 18 and circle No. 204

(Continued from preceding page)



After the cofferdam was completed, work went ahead on line drilling. Two Ingersoll-Rand drills, mounted on rails, start drilling for the apex cover under the auxiliary lock.

was barely visible, and Dravo had to flood the cofferdam area. The Johnson batch plant, which was within the cofferdam, was under water to the mixer floor. The primary conveyor belt, leading to the washer-shaker setup, was almost completely under water, and three erected gantries were submerged to the level of the operating platforms.

This situation, which caused about a month's delay in concrete operations, required over 400 million gallons of water to be pumped from inside the cofferdam. Three American 15-inch electric vertical pumps, a 10-inch vertical pump, and 6-inch pumps were set in the floodgates and worked around the clock to remove

the water. After the river waters receded and permitted the cofferdam floodgates to be opened, pumping started and continued for about a month. Work was started at the floor level of the lock, elevation 405, while pumping of the keyways for the lock walls continued.

Batch plant operation

The concrete plant setup consists of a Johnson automatic batch plant, three Koehring 3-yard tilting-type mixers, and a Johnson 750-barrel silo for storing natural cement.

Natural and portland cements are delivered to the job site by barges. Both cements are air-pumped to the silo and cement bin in the batch plant. Aggregates, also delivered by barges, are stored in six cylindrical cells adjacent to the batch plant and inside the cofferdam cells. A Dravo C17 crane with a clamshell bucket rides along the cofferdam to transfer the aggregates from the barges to the storage cells. These steel sheet pile cells include two for sand, one for 3/4-inch stone, one for 1 1/2-inch stone, one for 3-inch stone, and one for 6-inch stone.

A reclaiming tunnel, running underneath the six storage cells, houses a Goodyear 30-inch conveyor belt riding on a Dravo-built conveyor. From the tunnel, the different size aggregates go to an inclined Goodyear 30-inch belt—also on a Dravo conveyor—which feeds the Allis-Chalmers washer-shaker vibrating screens. Here the stone, except the sand and 3/4-inch material which bypass the screens, is washed to remove all fines. A Naylor Spiralweld 6-inch pipeline removes the sludge, by gravity, to waste.

After being washed, the different size aggregates continue up a second inclined belt, also a Goodyear 30-inch, to the rescreens atop the batch plant's aggregate bin. Here the aggregates are separated and stored in the bin compartments.

All the batching, weighing, dumping, and mixing cycles are automatically controlled from a neatly arranged central panel. As soon as the electronic push-button is activated, all the compartment gates open and fill the many weigh batchers with the concrete ingredients. Through a system of pull-wires, connected between the batchers and individual pre-set scales, the various compartment gates are automatically shut as soon as the correct weights of materials have been deposited in the batchers.

The batchers are then released, and all the ingredients simultaneously fall through a swivel chute and into one of the three Koehring mixers. After the required mixing cycle, the mixer automatically tilts and dumps the mix into the wet-batch hopper, which is used to charge empty concrete buckets.

Concrete rides rails

Dravo is using an efficient and time-saving system to transport the concrete buckets to both lock chambers. Rail tracks have been laid from the wet batch hopper at the batch

MR. CONTRACTOR

IN SPOTS LIKE THESE YOU NEED AN EIMCO EXCAVATOR



TIGHT QUARTERS



TUNNEL EXCAVATING



LOADING HEAVY ROCK

Illustrated are just three job conditions where 105 Eimco Excavators outperform other earthmovers. It takes care of the tough jobs just as efficiently as it does the easy ones.

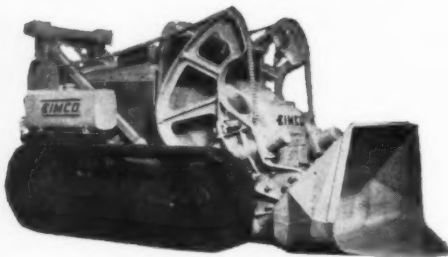
The knowledge and experience gained from building thousands of underground loaders was used to full advantage when we designed and engineered the Eimco Excavator. We gave it the same extra strength for severe service; increased the life and efficiency of working parts thru simplification; gave it I.T.R. (independent track reversal) mobility and "passenger car" power-shift operating ease. Then we put the operator up front where he can see what's going on.

Overhead discharge speeds cycle time; makes it possible to dig, load and dump from one position and do road-work without stopping highway traffic.

With powerful crowding action (39,000 lbs.) the Eimco 105 loads large rocks without secondary blasting usually required when boom shovels or other loaders are on the job.

The Eimco 105 Front-End Loader combines this same high tractor mobility with front end loading versatility for handling scores of different jobs economically.

Write for information on the Eimco 105 Tractor Excavator or Front-End Loader... ideal highway building tools.



EIMCO 105 EXCAVATOR

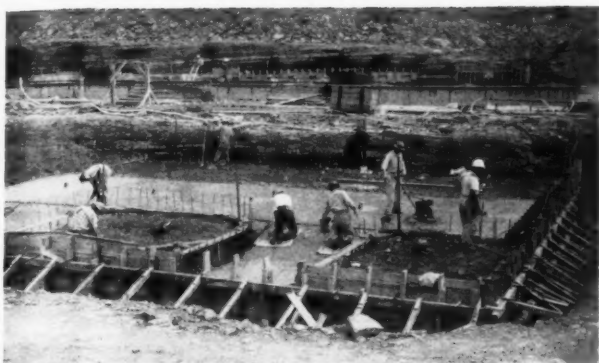
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5-395

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Workmen hand and machine-finish the tunnel and flooding port floors on the project. One of the men uses a Stow Roto-Trowel on the floor. These preliminary pours were formed with on-the-job fabricated timber forms.

plant to both lock chambers. Flat cars, each with two Dravo-built 3-yard concrete buckets, are pushed or pulled over the rails between the batch plant and pour areas by Plymouth 42-inch-gage diesel locomotives.

The concrete buckets are handled by three rail-mounted gantries—two American R-20's and one Dravo C17—which straddle the concrete hauling tracks. Concrete pours are consolidated with Malan vibrators and wall pours are formed with Blaw-Knox cantilevered forms. The horizontal surfaces of the tunnel and flooding port floor pours are formed with fabricated wooden formwork and finished by Stow Roto-Trowels.

Personnel

Col. Edward C. Comm is district engineer of the Louisville district of the Corps of Engineers; resident engineer is Justin Young. His principal assistants are John R. Bleidt, assistant resident engineer, and P. J. Clemens, concrete technician.

The supervisory staff for Dravo Corp. is headed by superintendent W. R. Switzer, and includes three assistant superintendents—A. E. "Archie" Archer, Harry R. Kraus, and Joe Proctor. Field engineer for the contractor is R. E. Fitzner. THE END

Clark Industries buys Lippert Bin Co.

Clark Industries, Construction Equipment Division, Columbus, Ohio, has acquired the manufacturing rights of the Lippert Bin Co., also of Columbus. Clark Industries is now in a position to supply a complete line of bins and batching equipment along with its recently introduced line of Wedge-Lok paving forms.

Lippert Bin produces cement and aggregate bins, elevators, belt conveyors, weight batchers, screw conveyors, and related items.

United Concrete appoints

George A. Reeves has been appointed manager of the Prestressed Concrete Division, United Concrete Pipe Corp., Baldwin Park, Calif. Reeves was formerly general sales manager for Graham Brothers, Inc., Los Angeles, Calif., and prior to that held the same post in the Metropolitan Sand & Gravel Corp., Inc., New York City.

NOVEMBER, 1957



GYRO-FLO + CRAWL-IR



... a highway construction team that gives you completely mechanized drilling power at its **RUGGED BEST!**



THE new Ingersoll-Rand CRAWL-IR is the most completely mechanized, self-propelled crawler drill ever developed. Boom swing, boom lift, tower tilt, tower swing and tower lift are all hydraulically controlled at the touch of a throttle, permitting faster, easier and safer setups for drilling in any position. And because it tows its own air compressor, even up grades and over rough terrain, you don't have to take other equipment off the job for this purpose.

Teamed up with a Gyro-Flo 600-cfm, it gives you a drilling combination that has no equal for economy and dependability of operation. The famous Gyro-Flo rotary action, thoroughly proved by more than six years of on-the-job service, is your best assurance of low-cost, virtually maintenance-free air power. Ask your IR Distributor or representative for complete information on this pace-setting drilling team.

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THE BEST AIR EQUIPMENT FOR BETTER HIGHWAYS

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A Quick-Way crane, left, lowers a section of Armco Multi-Plate pipe into one line of the stream enclosure as a second crane works on the other line. Nearly 4,000 feet of the 144-inch-diameter pipe was placed in 32 working days.

Runway is extended as stream is enclosed by 144-inch pipe

Building runways for multi-jet aircraft presented some tough engineering problems to J. A. Tobin Construction Co., Kansas City, Kans., contractor for expansion facilities for Whiteman Air Force Base, Knob Noster, Mo.

Originally a World War II permanent installation for glider training and troop carrier command, the air base was turned over to the Strategic Air Command during the postwar period. As larger and faster jet bombers became operational, the existing 10,-

000-foot runway proved inadequate. A 2,400×200-foot concrete runway extension was authorized to efficiently handle the latest type of jets.

At one end of the existing runway was an urban development, which made it impossible to expand in that direction. The site at the other end was complicated by a stream that flowed from a relatively narrow 3-mile-long drainage area. Channel flow in stream starts some 5,000 feet upstream from the site. It was decided that the stream could be successfully enclosed and an embankment constructed to provide a usable area for the runway extension. An existing road across the area was to be relocated far enough south of the field to provide an approach and clear zone for the extended runway.

Design specifications from the Kansas City district of the U. S. Army Corps of Engineers called for twin lines of 144-inch-diameter structural plate pipe, each 1,967 feet long, to take the channel flow for the stream enclosure. The pipe was to be installed on the natural channel slope of 0.001 foot per foot of length. The enclosure was designed to project under the runway extension, the taxi apron, and the relocated road at both ends of the channel.

The double lines of 7-gage, 144-inch-diameter Armco Multi-Plate pipe had a bituminous coating. The pipe was supplied with a 5 per cent vertical elongation that eliminated the need for strutting.

In order for the contractor to efficiently construct the embankment, the total length of the pipe had to be assembled as quickly as possible. This permitted the relatively wet fill material to be spread in shallow lifts over the entire area of the enclosure and to dry out to an optimum moisture content for compaction.

Armco construction crews assembled the pipe. Erection began at the center of the two lines and work progressed in both directions. This enabled the contractor to start grading at the point where the fill was the highest. Two cranes and 40 men assembled the first 2,400 feet of the twin 144-inch pipe in 17 working days. The remaining 1,534 feet was completed in 15 more working days.

The project also called for a one-million-yard excavation for the embankment and road relocation. Paving of the runway and taxi apron took 88,180 square yards of heavy load portland-cement concrete pavement, and 37,625 yards of light load pavement. Apron and taxiway shoulders are of bituminous concrete. **THE END**



All-round performer

The rugged Model 14 excels from every angle. This single-cylinder, 4-CYCLE gasoline engine (5.25 hp) pays its way with standout performance over a wide work range. Like Models 9, 19, 23A, it features exclusive Magnematic Ignition for instant starting — under all conditions.

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It's a fact! Briggs & Stratton 4-CYCLE engines are most welcome partners in the front lines of construction progress. They're famous for staying right in the thick of things — running smoothly, surely — regardless of "hard knocks," heat or cold, snow or rain. Insist on these engines (up to 9 hp) for your projects, too — on pumps, compressors, finishers, tampers, concrete saws, generators, elevators . . . scores of other products for progress in construction.



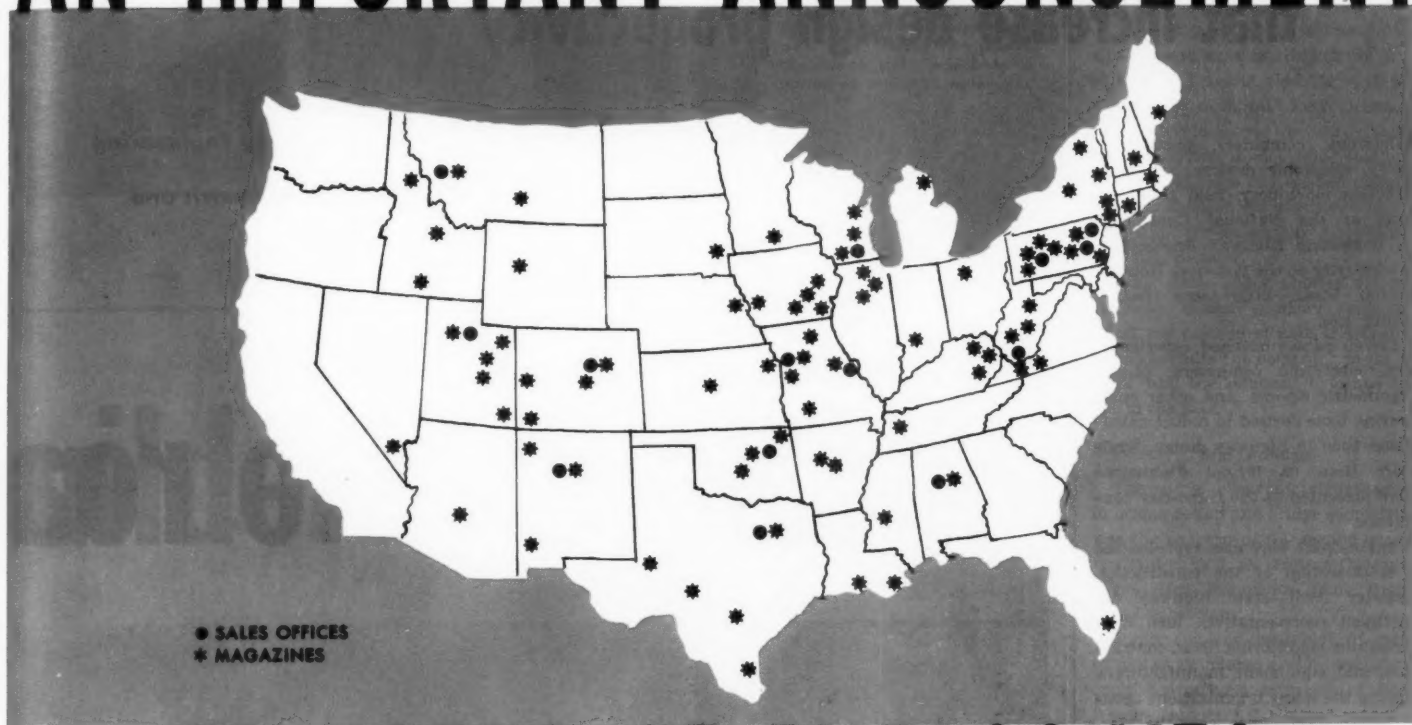
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EXPLORATIONS

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Highway experts take stock of machines that increase design productivity

Electronic computers, photogrammetry, electronic devices, and construction machinery, held the spotlight at the National Conference on Increasing Highway Engineering Productivity at the Somerset Hotel in Boston, Mass., little more than a month ago.

Eleven panels outlined experiences with electronic computers, photogrammetric devices, and other engineering tools devised to reduce calculation time in highway design, while more than 65 formal discussions were presented at the three-day conference.

Taking part were men representing a cross-section of the construction industry itself—state highway department representatives, men from consulting engineering firms, contractors, and equipment manufacturers. Among the many organizations sponsoring the conference were the Massachusetts Department of Public Works; the Department of Civil and Sanitary Engineering of the Massachusetts Institute of Technology; Association of Highway Officials of the North Atlantic States; American Association of State Highway Officials; and the Bureau of Public Roads, U. S. Department of Commerce.

The opening panel, moderated by J. W. Johnson, superintendent of New York's Department of Public Works, discussed the use of electronic computation to speed highway location and design. Four representatives from Arizona, New York, Missouri, and Illinois highway departments described the formation and operation of the electronic-computer divisions within their departments. Each setup used a different make of computer.

The chief of computing section for the Arizona State Highway Department, R. Glen Ryden, said he found that if highway computations for 6 miles of roadway were done each month, it would more than offset the rental fee of the Remington-Rand Univac 120. This takes data obtained from field survey notes and translates it to a form easily digested by the computer. Ryden did not change the usual manner of keeping field notes, but he did request better spacing.

Another panel member was L. M. Saunders of the New York Department of Public Works, which has been equipped with an IBM calculator for administrative functions since 1935. But just recently, Saunders said, the department has installed an IBM 650 computer to relieve the design engineers from the routine and time-consuming earthwork and highway computations. This, he found, has given the engineers more free time to concentrate on creative designs and keep abreast of new techniques and materials.

National Conference on Increasing Highway Engineering Productivity discusses merits of photogrammetric and electronic computations

A tale of two roads



CONTRACTOR: E. M. Duesenberg, Inc., Clear Lake, Iowa.

JOB: Moving 4,000,000 cu. yd. for an eight-mile section of a four-lane divided highway (Route 69) near West Des Moines. Job includes cuts to 50 feet and Iowa's first complete cloverleaf.

CATERPILLAR FLEET: Two D9s, two D8s, three D7s, one D6, five DW21s, three No. 12 Motor Graders, one DW20, three D8-No. 463 Scraper units and three D6-No. 6S Bulldozers.

MATERIAL: Heavy glacial clay, shale, wet silty clay.

PRODUCTION: 20,000 yards per 20 hours on 2,000-foot round-trip hauls.

PERFORMANCE: "The D9 just can't be beat for power and for all-around performance. It really is showing its stuff in this tough clay. And this is our fourth season with some of the older DW21s. We've never had any transmission trouble or had the bowl off any of them. I feel sure our new DW21s will give us as good or better service."

JACK R. HEPP
Project Manager

CAT® D9 Tractor push-loads a DW21-No. 470 Scraper with No. 12 Motor Grader. Says Jack R. Hepp, Project Manager: "The D9 really is showing its stuff in this tough clay. Our push-loaders are doing a great job of it."

AMERICA'S new highway building program demonstrates the nation's road builders with their greatest opportunity... their biggest challenge. That's why you'll find contractors using Cat-built equipment wherever you find the big, tough jobs. Caterpillar has the way up to the giant 320 flywheel HP D9, then a complete line of Caterpillar track-type Tractors designed to deliver more production at lower cost with less down time. Whatever your own needs may be, just call your Caterpillar Dealer for



The new Kresge Auditorium of the Massachusetts Institute of Technology where the conference met on the second day. The building consists of a thin-shell concrete roof, shaped like a section of orange peel, which is supported on only two points.

adbuilders

THEY'RE WORKING ON DIFFERENT SECTIONS OF U. S. 69 (IOWA'S NORTH-SOUTH INTERSTATE HIGHWAY). THEY'RE ENCOUNTERING DIFFERENT PROBLEMS. BUT THEY'RE BOTH DEPENDING ON CATERPILLAR FLEETS TO SOLVE THEM.



Scraper with No. 8 Ripper push-loads a DW21, while at right a
et Manag push-loads a second DW21. Says Foreman Don Wash-
ough claim: "Our new D8 with its ripper is really a productive unit."

g program demonstration. And remember this: you can count
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ge. That our service and quality Caterpillar parts.

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CATERPILLAR*

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**WANTED—
THE HARD WORK**

CONTRACTOR: R. B. Burch, Inc., Cedar Rapids, Iowa.

JOB: Moving 3,000,000 cu. yd. for a 10.8-mile section of Route 69, west of Indianola, Iowa. Cuts up to 50 feet.

CATERPILLAR FLEET: Two D9s, D8 with No. 8 Ripper, two D8s with sheepfoot tamperers, 11 DW21s, and a No. 12 Motor Grader.

MATERIAL: Clay.

PRODUCTION: 35,000 cu. yd. per 20 hours on 3,600-foot round-trip haul.

PERFORMANCE: "Our new D8 with its ripper is really a productive unit. It loosens this hard clay, saving wear on our machines and giving us bigger loads. And our new DW21s are doing a great job. With the new LOWBOWL design, we load in the same amount of time or less and get three more yards per load."

DON WASHBURN
Foreman

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The other two panel members, D. W. Vanderslice of the Missouri State Highway Department and L. E. Davidson of the Illinois Division of Highways, explained in detail the programs used to reduce calculation time for highway design.

The last panel member was Philip King, a partner in the consulting firm of King & Gavaris, New York, N. Y., which uses a digital electronic computer. Emphasizing the word "tool" when referring to electronic computers, he said "it is our studied opinion that an electronic computer is not a substitute for education, experience, and judgment."

King, using slides, showed various highway design problems encountered, the method of data translation which permits the computer to do its work, and the solutions obtained for use in the field.

Bridge design

The use of electronic computation in bridge design and bridge geometrics was the concern of the second panel, moderated by J. O. Morton, Commissioner, New Hampshire State Highway Department.

Slides showing examples of such things as structures and interchanges computed on various makes of electronic computers illustrated many of the presentations.

The last panel of the day discussed electronic computation in traffic studies, traffic simulation, and research analyses.

Computer organizations

Four panels were held the second day of the conference in the Kresge Auditorium of the Massachusetts Institute of Technology.

S. E. Ridge of the Bureau of Public Roads moderated the first panel, which considered the organization of a computer division and its place in the highway engineering organization.

It was during this panel that Sam Osofsky, supervising highway statistician of the California Division of Highways, called the electronic computer a "rapid moron". This "very fast calculating machine, with the ability to memorize numbers and instructions", he said, "does not have a brain and thinking ability will have to be provided by personnel in the organizational setup". The organization and operational procedures used in these departments to help design engineers reduce the computation time for roadways were also outlined by this panel.

Progress in electronic computer programs and computation service centers was the topic of the next panel. With H. A. Radzikowski, chief of Development of the Bureau of Public Roads, as moderator, panel members outlined the development of specific computer programs for specific jobs within their consulting engineering firms. Programs ranged from the very simple—formed by reducing complex problems to simple subdivisions—to complicated programs that combined intricate calculations in a single pass.

(Continued on next page)



(Continued from preceding page)

Photogrammetry

The last two panels held during the second day discussed the means of getting optimum value from photography and photogrammetry in highway engineering and in the development and instrumentation of a photogrammetric electronic computer

The newest models of calculators put out by Monroe were shown and demonstrated at this display in the Somerset Hotel, headquarters for the conference.

Electronic devices

The third and last day of the conference, the opening panel was held on electronic devices and processes to improve highway engineering and operation. J. N. Robertson, Director of Highways of the District of Columbia, and vice president of the American Association of State Highway Officials, was moderator. During this panel, D. N. Lapp of Tele-Dynamics, Inc., Philadelphia, Pa., described the remote-controlled changeable highway sign developed by his company. New electronic surveying instruments were discussed by Capt. John H. Brittain, of the Coast & Geodetic Survey, and R. P. Shea, Los Angeles, Calif., described the development and use of the electronic blade control developed by Preco, Inc., for Caterpillar No. 12 and No. 112 motor graders. The statewide radio communication system of Massachusetts was explained by the chief engineer of the Massachusetts Department of Public Works, E. J. McCarthy.

The second panel of the day—on means of encouraging the development and use of new economical highway construction and maintenance rigs—had Julien Steelman, president of Koehring Co. and president of the American Road Builders' Association as moderator.

The members of this panel—all manufacturers' representatives—stressed the importance of specifying only end results on a contract project, rather than specifying methods and equipment to be used. All pointed out that many state contract specifications limit the choice contractors have over equipment.

Another point emphasized was that there are as many equipment specification requirements as there are states. This, they felt, was an unjust hardship for the contractors. They recommended that a committee be established to study equipment developments and to pass judgments on them. Once it accepts a piece of equipment for a specific task, they felt, the states should do the same. Some of the panel members felt that this would eliminate the time-consuming task of demonstrating new developments to each state in order to get acceptance.

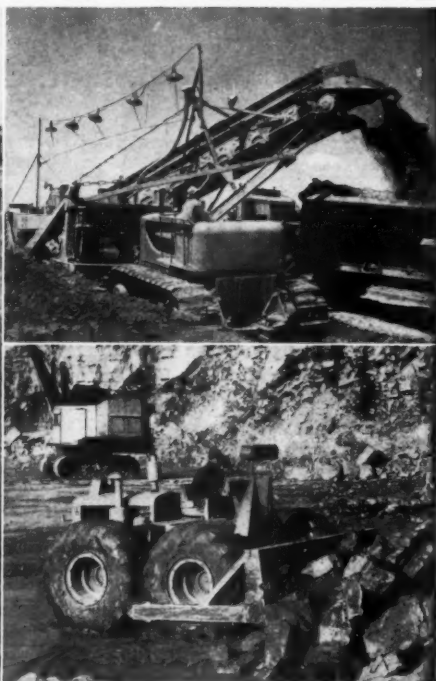
Contractors speak

The need for improving construction and contract procedures came in for discussion during the third panel, moderated by the chairman of the Wisconsin State Highway Commission, H. L. Plummer.

Panel members—from contracting

(Continued on page 18)

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- ☐ H-12 Oliver Green
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- ☐ H-7 Ferguson Gray
- ☐ H-27 Light Euclid Green

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- ☐ H-19 Massey-Harris Red
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4 SPEEDS FORWARD, 4 REVERSE

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COMPACT, INTEGRAL DESIGN

3

500 FT-LBS TORQUE CAPACITY



The new power shift transmission by Westinghouse is designed for use on engine-driven equipment used off the highway where multi-speed operation is required.

Consisting of a torque converter and a power transmission compactly designed in an integral housing, the Westinghouse power shift transmission combines in one package the desirable features of the hydraulic torque converter, fluid coupling and power shift transmission. The entire unit is less bulky, takes less space . . . can be less expensively installed and maintained.

With four speeds forward and reverse, the Westinghouse power shift transmission is ideally suited for vehicles which must travel in both directions during a normal work cycle. Using the simple, rugged counter-shaft principle with constant-mesh gears, field maintenance is reduced to a minimum. The transmission has two ranges, with each range having two speeds, both forward and reverse. (A high range for high vehicle speeds at moderate loads and a low range for low vehicle speeds at heavy loads.)

Simple to operate, a flip of the operator's lever accomplishes power shifts within each range, including forward and reverse . . . and without any interruption of power flow through the transmission and drive.

Automatic feature of the converter and ease of power shifting simplifies operator training and substantially contributes to longer operating life of the equipment. Absence of clutch pedal assures smooth, maximum traction acceleration.

Rated at 500 ft-lbs maximum input torque, the Westinghouse power shift transmission can be used with a wide range of internal combustion engines . . . including the Continental PE-200-1; Cummins HRBB-600, JT-6, JBS-600; General Motors 4-71, 3-71; Hall-Scott 590; Waukesha 140-GZB, 145-GKB, and many others.

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LOW RANGE	FORWARD AND REVERSE
1st gear	6.85
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HIGH RANGE	
3rd gear	2.14
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OPTIONAL EQUIPMENT: Direct connection to engine fly-wheel; converter tail shaft governor drive; speedometer drive; parking brake.

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Westinghouse



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Caterpillar Tractor and Preco, Inc., combined forces for this display of how an automatic grader blade control works on a Cat No. 12 motor grader.

(Continued from page 16)

firms—discussed such problems as specifications that detail the method of construction rather than outline the end result required, methods used to make monthly and final payments for work performed, and field changes. The proceedings of the conference were summarized during the last panel, moderated by F. V. du Pont, consulting engineer.

Exhibits and displays

Manufacturers of electronic and photogrammetric equipment had ex-

hibits in the west foyer of the Somerset Hotel during the conference. Represented were such electronic computers as Bendix, International Business Machines, North American Aviation, and Remington-Rand.

Plotting equipment shown included that made by Benson-Lehner, and Electronics Associates, Inc. General Electric-tone control, Tele-Dynamics induction radio were among radio and electronic controls on display. Tele-carrier had variable message signs on exhibit, while Preco, Inc., and Caterpillar Tractor Co. showed construction machinery controls.

Photogrammetric equipment and processes on display were by Lockwood, Kessler & Bartlett, and Aero Service Corp. Tellurometer also had an electronic surveying device displayed.

THE END

Clark acquires ownership in British lift truck firm

Clark Equipment International, C. A., has acquired a one-third interest in I. T. D., Ltd.,—manufacturer of fork trucks in the British Isles—from the Austin Motor Co. and Crompton Parkinson, Ltd. The Austin Motor Co. and Crompton will continue to participate in the joint ownership of I. T. D., Ltd., with Clark Equipment International.

The English firm is being reorganized to introduce the manufacture of the Clark line of industrial trucks in England. Under a licensing arrangement, I. T. D., Ltd., will produce a full line of equipment including Clark's small battery-powered Powworker hand trucks, the new Clark-lift line of fork trucks, and large-capacity, pneumatic-tire trucks.

Clark Equipment International is a wholly-owned international subsidiary of Clark Equipment Co., Buchanan, Mich.

Worthington promotions

Three promotions have been made in the marketing division of Worthington Corp., Harrison, N. J.

William C. Cheek, manager of the Chicago district office, has been appointed Midwest region sales manager. He has been with the company since 1920. Taking Cheek's post as manager of the Chicago district office is John H. Loomis. Loomis, formerly manager of the corporation's St. Louis district office, has been with Worthington since 1945. The position vacated by Loomis has been filled by Hollis H. Wise, who has been with the firm since 1938.

Littleford appoints Bush

James B. Bush has been appointed district representative for Littleford Bros., Inc., Cincinnati, Ohio. In his new position, Bush will assist Littleford dealers in New Mexico, Texas, Oklahoma, Arkansas, Louisiana, Mississippi, and western Tennessee.

from 30 T.P.H. to 250 T.P.H.*

...there's a



* These are rated capacities. With the big MADSEN 6000 lb. Plants owner claims are near the 300 T.P.H. mark.

MADSEN ASPHALT PLANT for every job...every budget

If you're in the asphalt producing business—whatever your requirements are—there's a MADSEN Asphalt Plant to handle your particular needs. MADSEN Plants are built in capacities from 1000 lbs. to 6000 lbs. per batch. They are known for their high production, simple, fast operation, low maintenance costs and long-lived performance. The down-to-earth ability to make more money on every asphalt mixing job enables MADSEN owners to bid advantageously on today's asphalt paving jobs and to show a greater return on their investment. Plan now to put a MADSEN Asphalt Plant to work... see your MADSEN Distributor.

THE LITTLE MONSTER®

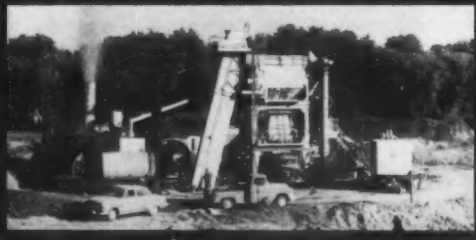
This complete asphalt mixing plant on wheels is designed for fast moving, fast set-up and substantial daily production. Plant shown, owned by a State Highway Department is complete including two MADSEN 32" x 10' Dryers, a MADSEN 2-compartment portable feed bunker and dual cold stone elevators. Mixer unloading skip... loads asphalt into trucks. Plant is rated at 30 T.P.H. on a one minute mixing cycle.

MADSEN 2000-LB. SPECIAL ASPHALT PLANT

A small plant with big plant features. The 2000-lb. SPECIAL is ideal for the not-too-large contractor, the municipality and the large contractor who wants a small type of operation for producing approximately 480 tons per 8-hour day. It's an ideal plant for handling those jobs up to the 10,000-ton class.

MADSEN MODEL 481 ASPHALT PLANT

This outstanding MADSEN plant is available in 4000-lb., 5000-lb. and 6000-lb. batch capacities. It is designed for the ultimate in portability. Incorporates many MADSEN "firsts" that speed production and reduce maintenance costs. The 481 may be purchased as a 4000-lb. plant and converted to a 5000-lb. or 6000-lb. plant with only minor modification costs.



For information on the MADSEN Asphalt Plants shown above, the MADSEN 3000-lb. Plant or the new MADSEN "HOT ROD" Asphalt Plant... (available in 3000-lb., 4000-lb. and 5000-lb. capacities)... ask your MADSEN Distributor or write MADSEN WORKS, Baldwin-Lima-Hamilton Corporation, P.O. Box 38, La Mirada, California



Equipment that Serves

THE MADSEN LINE OF PRODUCTS FOR THE ASPHALT PAVING INDUSTRY
ASPHALT PAVING PLANTS • PUG MILL MIXERS • AGGREGATE DRYERS • DUST COLLECTOR UNITS
ROAD PUG TRAVEL-MIX PLANTS • WEIGH BATCHERS • SUPER FLOAT AND JOHNSON FLOAT FINISHERS
ASPHALT TANKS • ROYAL CROWN PUMP VALVES • ASPHALT AND FUEL PUMP UNITS



MADSEN WORKS
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CONSTRUCTION EQUIPMENT DIVISION
DIVISIONS: Austin-Western • Eddystone •
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Lima • Loewy-Hydropress • Madsen • Pelton
• Standard Steel Works

For more facts, use Request Card at page 18 and circle No. 212

Odor-control solution keeps road job on time

Decomposed garbage halted construction, but only temporarily, on a \$4 million road project in Baltimore, Md. A section of land along the 2-mile connecting link for the Baltimore-Washington belt system, filled in with garbage and other refuse, was unstable and had to be excavated.

But when C. J. Langenfelter & Son, Inc., Baltimore, began to dig up fill, so that it could be replaced with good earth, complaints about the odor began to roll in from irate citizens and the press, and the work was brought to a halt. The contractor had been using four shovels working around the clock to speed up the operation. Two 3-yard draglines and two 2½-yard draglines made a 90-foot-wide x 20-foot-deep cut. Controlling odors in such an operation seemed to be an impossibility.

The contractor might have used one dragline to remove a small amount of fill, so that new earth could be placed immediately. This would have extended the job along and the odor problem would have become serious. It was obvious that some method of odor control would have to be adopted.

Airkem, Inc., New York, N. Y., got the odor-control job. This firm does not attempt to mask odors, but neutralizes the odors. The company's field men accept as satisfactory the condition where the odor is so reduced in intensity as to be unobjectionable. The contractor's crews used over 600 gallons of Airkem to treat not only the 309,000 yards of cut, but also the dump trucks hauling the fill to a new waste area, and the new waste area itself.

The Airkem arrived in 55-gallon drums on a flat-bed truck which also carried a portable compressor and a pressure tank which were connected to the drum. Flexible lines carried the liquid to a 10-foot-long galvanized pipe and nozzle. One man sprayed the odorous fill with the solution as 25 dump trucks, 4 draglines, and 40 men using all kinds of heavy equipment worked at the site.

The method of treatment used on the job was far less expensive than anticipated since the parts needed for putting the spray unit together were available on the job site. Not only was the job completed during cold weather, but it was finished ahead of schedule and without becoming a public nuisance.

Wood Shovel & Tool Co. acquires Geyer Mfg. Co.

The Wood Shovel & Tool Co., Piqua, Ohio, has acquired the Geyer Mfg. Co., Rock Falls, Ill., and Geyer has become a division of Wood Shovel. Howard A. Geyer, president of Geyer Mfg. Co., has remained as a consultant to Geyer and Wood.

Wood Shovel makes a complete line of shovels, scoops, post-hole diggers, and wheelbarrows. Geyer manufactures forks, cultivators, and hand tools.

A workman sprays Airkem odor-control solution on refuse and garbage fill being excavated for part of the 2-mile connecting link for the Baltimore-Washington belt system. Two 55-gallon tanks, a portable compressor, and pressure tank are carried on a flat-bed truck.



**You don't have to
weld it...
you just point it!**



STODDY SEMI-AUTOMATIC HARD-FACING *The fast way to take the work out of welding!*

Hard-facing with the new Stoddy Semi-Automatic Wires is *that* easy! You simply "aim" the wire and strike the arc. The semi-automatic machine does the rest... automatically feeds the wire at the correct rate, lays down a sound deposit—stringer bead or wash pass.

Man, it's a welder's dream! No fluxes, no flux dams. Perfect visibility of the weld every inch of the way. And talk about speed—2 to 4 times faster than manual welding... ideal for covering big areas quickly, extremely handy for maintaining equipment between shifts! No changing of electrodes either... welding is continuous as long as there's wire on the reel and this naturally means an end to stub end waste.

With Semi-Automatic's low heat input and low penetration, there's less dilution of the deposit. *Less dilution* means *higher alloy content* with increased wear resistance, usually superior to manual electrodes of similar analysis. There's a complete line of wires with just the right analysis for every job!

TRY SEMI-AUTOMATIC HARD-FACING THIS EASY WAY—Your Stoddy dealer will arrange for a semi-automatic demonstration in your plant—on your own job. (Check the yellow pages of your phone book for nearest Stoddy Dealer.) Let him prove how Stoddy Semi-Automatic Hard-Facing can cut your maintenance costs!

STODDY COMPANY

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For more facts, use Request Card at page 18 and circle No. 213

Chairman McClellan of the Senate labor rackets committee commended George Meany and the AFL-CIO for the start that has been made toward eliminating corrupt elements from the labor movement, but he warned that legislation establishing "basic standards" for union officers' conduct is coming, regardless of the federation's house cleaning efforts.

In a speech before the American Institute of Supply Associations, Inc., in New York City, the Arkansas Democrat said he has every reason to believe that Meany and other AFL-CIO officers intend to enforce the newly adopted Codes of Ethical Practices. "But," he continued, "let no labor leaders contend, or anyone else assume, that no revision of existing law is needed; that no legislation of any kind will be required to put labor's house in order. It is already apparent that in some areas the need for corrective legislation is urgent and compelling."

McClellan believes it is too early to formulate specific legislation, but he expressed the hope that his committee will have some concrete recommendations by next January.

"Other legislation may well be directed against management," McClellan thinks. He said, "A corporation or the proprietor of a business who conspires with corrupt labor leaders to their mutual benefit and advantage and to the harm and detriment of the working man brings disrepute upon management, and is equally guilty and should be treated and punished accordingly. If additional laws are needed to insure that result, such legislation will have my full support."

Three unions reached retroactive settlements with striking ready-mix concrete plants in the San Francisco area, ending a six-week walkout.

A two-year contract with each union was the result. The Operating Engineers received a wage increase of 22½ cents an hour, retroactive to June 1. Another 2½ cents an hour was retroactive to September 1. Further increases are 22½ cents on June 1, 1958, and 2½ cents on January 1, 1959. Added benefits called for by this settlement included an increase in the current health-welfare payment from \$11.50 to \$15.00 a month, and installation of a pension plan costing 10 cents an hour, on January 1, 1959.

The other two unions, the Laborers and the Teamsters, took a little less. The Teamsters settled for 22½ cents an hour, retroactive to July 1, 1957, with another 22½ cents on July 1, 1958. A 10-cent pension payment comes due as of January 1, 1959.

Laborers settled for 18 cents an hour, retroactive to August 1, 1957, with another 18 cents an hour a year later. In addition, a 10-cent health and welfare payment is called for as coverage is shifted from the

Engineers' health-welfare plan to the Laborers' health-welfare plan.

The Laborers' agreement called for vacations—one week after one year's service, two weeks' paid vacation after three years. The agreement also calls for paid holidays.

A second area-wide contract for field construction work was wrapped up by the International Brotherhood of Boilermakers & Blacksmiths. Pat-

terned after the recently signed 11-state agreement for the Missouri River Basin area, the contract spells out wages and working conditions for some 10,000 workmen in five south central states—Texas, Oklahoma, Arkansas, Louisiana, and New Mexico.

Wage rates under the agreement were boosted 20 cents an hour as of September 10, to make the new journeyman rate \$3.45. Helpers now get

\$3.20 an hour; assistant foremen, \$3.70; and general foreman, \$3.95. A 7½-cent welfare contribution is continued in the new one-year contract, and this will be raised to 10 cents an hour on June 1, 1958, if the union can negotiate the change in its other area contracts. The 2½-cent boost is already called for in the Missouri Basin agreement.

The South Central contract also established a one-cent per man hour

Caterpillar announces an in the world's most ad

The engine that delivered outstanding performance is now available as the D353 Industrial Engine

D397
650 HP†

D375
430 HP†

New D353
390 HP†

D342
225 HP†

D339
140 HP†

D337
310 HP†



THE NEW CAT D353 ENGINE

is a six-cylinder, four-cycle, valve-in-head turbocharged diesel. It is available as an electric set rated at 200 KW (continuous duty) and as a marine engine. A full line of matched attachments is also available—items such as air, electric and gasoline starting systems; clutches; bases; controls and governors; cooling systems and mufflers. Over-all length, width and height of basic industrial engine are 75", 47½" and 69¼".

payment into an apprentice training fund. Effective date of the new fund was not set, but a member of the union's negotiating teams said a union-management committee has been set up to work out details of the training program and employers have agreed to follow committee recommendations. The fund will be used throughout the five-state area, and the program is expected to begin early next year.

The only major difference between the South Central and Missouri basin settlements is in travel pay. The South Central contract calls for a two-cent boost in mileage allowances. Effective September 10, union members get 9 cents a mile for travel to and from jobs located 40 miles or more from the city hall in a local union's jurisdiction.

The governing and advisory boards

of the Associated General Contractors met September 9 to 11 in Seattle, Wash., to take action on a variety of construction problems, among them, labor policies and labor legislation.

AGC's labor and legislation committees concurred in recommending Congressional study of the Davis-Bacon Act, and called for court review as one of the needed amendments to the law.

The AGC, in addition to adopting

this recommendation, decided to back changes in the Taft Act that would ban secondary boycotts. It also would like to see legislation to wipe out the "no man's land" in federal-state jurisdiction over unfair labor practice cases.

The group emphasized the need to hold wages and benefits "to reasonable levels in order to reduce inflationary pressures." It recommended that its 7,000 member contractors, and various AGC chapters, "continue to develop strong labor committees to cope with a trend of some unions to bargain with unqualified or irresponsible employer groups." Another recommendation was to resist including "any restrictive provisions" in union contracts.

After three days of hearings, the International Union of Operating Engineers acted through its Executive Board to find its sixth vice president, Victor Swanson, guilty of corruption. The Board removed him from office in the International and ousted him as business manager of San Francisco Local 3; it also barred him from holding any union office for five years.

At the same time, the Board ordered the San Francisco local to "take steps necessary to recover such funds and property of the local as the local union may be legally entitled to".

Without going into details, a statement from the Board said the 70-year-old man was found guilty on charges involving union real estate transactions in Stockton, Calif.

Swanson had been the reputed head of a group in the Operating Engineers which opposed continuing William Maloney in office as president of the union. At the union's convention, last winter, which was closed to the press, Swanson was rumored to be the choice of Pete Weber, powerful head of New Jersey Local 825, in his unsuccessful bid for the union presidency.

Swanson recently was convicted of sending threatening letters through the mail and lying about them to FBI agents. His sentence was a fine and two years' probation.

Construction expenditures in August reportedly rose to a record annual rate of \$47.5 billion, according to a report from the President's Council of Economic Advisers.

Outlays for commercial and industrial projects, as well as public works, were up from July, while expenditures for private residential building were unchanged.

The Council estimated that over three million workers were employed in construction during the month. Average hourly earnings for building construction workers were estimated at \$2.94, and weekly pay averaged \$108.78, the Council reported, with 37 hours the average workweek.

For more facts, circle No. 214

Another heavy-duty engine Advanced line of diesels

Performance in the famous D9 Tractor
Engine, Electric Set and Marine Engine

D337 40 HP†	D337 110 HP†	D326 200 HP†	D318 (SERIES G) 175 HP†	D315 (SERIES G) 115 HP†	D318 137 HP†	D315 91 HP†	D311 65 HP†
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†Maximum output capacity

Adding to Caterpillar's line of modern heavy-duty engines, there's now the Turbocharged D353 rated at 390 HP (maximum output capacity). This engine, a prototype of the unit in the mighty D9 Tractor, is job-proved after thousands of hours of operation in the field!

Like all modern CAT® Diesels, the D353 incorporates in its design the advanced features developed by Caterpillar in a quarter century of diesel leadership. Compact and sturdy, it is built for the hard work. Its four-cycle design delivers the long, effective power stroke that puts power to more efficient use than other types of engines. Its turbocharger utilizes waste energy from the engine exhaust to increase over-all efficiency and economy. Its fuel system requires no adjustment. There are no cylinder ports to clean. And its exclusive Caterpillar single-orifice injection valves, combined with the pre-combustion chambers, permit the use of a wide range of fuels including premium diesel fuels as well as low-cost No. 2 furnace oil without fouling. All these and other features add up to performance that no unit in its power class can match.

With the addition of the D353 to the Caterpillar Engine line, you now have a wider choice than ever for your

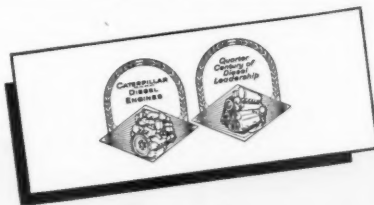
requirements. Engines are available up to 650 HP (maximum output capacity) and electric sets up to 350 KW (continuous duty). Either as original or replacement power, there's one among hundreds of different arrangements that exactly meets your needs. Leading manufacturers of machinery can supply these models in the equipment they build.

For complete information about the new D353 and other Cat Diesels, see your Caterpillar Dealer. Let him show you how diesel leadership based on a quarter century of experience can engineer the modern, heavy-duty diesels of tomorrow.

Caterpillar Tractor Co., San Francisco, Calif.; Peoria, Ill., U.S.A.

CATERPILLAR*

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Caterpillar "Firsts" In a Quarter Century of Diesel Leadership

- "Hi-Electro" hardened cylinder liners
- Chemically conditioned cylinder liners
- Stainless-steel piston protectors
- Aluminum alloy bearings
- Interchangeable, adjustment-free fuel injection equipment

- Capsule-type injection valves
- Service meters
- Superior lubricants (detergent oils)
- Notarized, certified power

**AND
MANY MORE!**

Certified Power for Cat Diesel Engines

Through the years, Caterpillar Engines have earned a reputation for honestly rated power. Now Caterpillar backs this reputation with a notarized certificate covering the horsepower capabilities of each engine. Caterpillar is the first and only manufacturer to give you this assurance of capacity. You have a right to demand certified power when you invest in an engine. You get it when you buy from your Caterpillar Dealer!

you **DIG** more



with **BREAKOUT** action

... and 40° bucket tip-back **at ground level**, both of which are productive features **EXCLUSIVE** with "PAYLOADER" tractor-shovels. They can not be found on any other rubber-tired loader.

To the user they mean that loads can be obtained easier and faster with less strain on the machine and bigger loads can be **RETAINED** in the bucket with the 40° tip-back **AT GROUND LEVEL**.

The **FIRST** four-wheel-drive tractor-shovels were introduced by The Frank G. Hough Company just ten years ago and many of them are still in daily use. Neither they, nor any of the numerous copies being offered are as productive as these new "PAYLOADER" models.

Every "PAYLOADER" distributor not only invites comparison but will be glad to **PROVE** in **ACTUAL DEMONSTRATION** all of the points of "PAYLOADER" superiority.



PAYLOADER®

MANUFACTURED BY
THE FRANK G. HOUGH CO. LIBERTYVILLE, ILL.
SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY



11-B-1a

For more facts, use Request Card at page 18 and circle No. 215

you **CARRY** more



with **CUSHIONED** loads

... using hydraulic load-shock absorber as standard equipment on all four-wheel-drive "PAYLOADER" models, another **HOUGH EXCLUSIVE**.

It doesn't matter what kind of an extra big load an operator was able to get to begin with if most of it is lost in **SPILLAGE** while traveling.

The "PAYLOADER" load-shock absorber does not completely eliminate spilling if you are operating over exceptionally rough surfaces ... but it does minimize the loss and enable you to **RETAIN** more.

This is just one more reason why these new "PAYLOADER" tractor-shovels are more productive and why the combination of all the features which only Hough-designed units offer the user make "PAYLOADER" a better buy than any other equipment.

If you are not familiar with these new models your "PAYLOADER" distributor will be glad to demonstrate them to you.



PAYLOADER®

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11-B-1b

For more facts, use Request Card at page 18 and circle No. 216

you **DELIVER** more



with **NO STOP** for shifts

... which the "complete" power-shift transmission of these "PAYLOADER" units provides by saving time and effort.

There is no need to bring HOUGH tractor-shovels to a stop for a "range" shift. All shifts in both forward and reverse can be made "on the go".

When you travel over muddy or slippery terrain, "power-transfer" differentials automatically transfer more power to the wheels with the best footing. This is another STANDARD on all four-wheel-drive "PAYLOADER" tractor-shovels.

Therefore, if you GET more at the start, if you SPILL less during travel, if you can travel faster with NO STOPS for shifting and better traction ... you are going to be able to **deliver MORE** ... and, after all, that's what counts.

Only "PAYLOADER" tractor-shovels have all of these PRODUCTIVE features which spell more PROFITABLE operations for the user.



PAYLOADER®
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THE FRANK G. HOUGH CO. LIBERTYVILLE, ILL.
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11-B-1c

For more facts, use Request Card at page 18 and circle No. 217

you **GET** more



with **GREATER** choice

... of any and all kinds of financing.

What best fits your needs?

Do you want to purchase on a **time payment** plan? Your "PAYLOADER" distributor can offer you such a plan tailored to various periods to suit your needs.

Do you want a **leasing plan*** with an **option to purchase?** He has a number of these which can be adapted to fit your requirements and preferences.

Do you want a straight **leasing plan*** without a purchase option? He can provide "PAYLOADER" equipment for your operations on a straight leasing plan.*

Your distributor of "PAYLOADER" machines now has at his disposal the broadest and most complete set of financing plans and arrangements being offered.

He will be glad to discuss your needs for the finest equipment and offer you the greatest choice of terms. He will consider trade-ins.

He'll even take cash!

Consult him at once.

* (available in the continental U.S.A.)



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THE FRANK G. HOUGH CO. LIBERTYVILLE, ILL.
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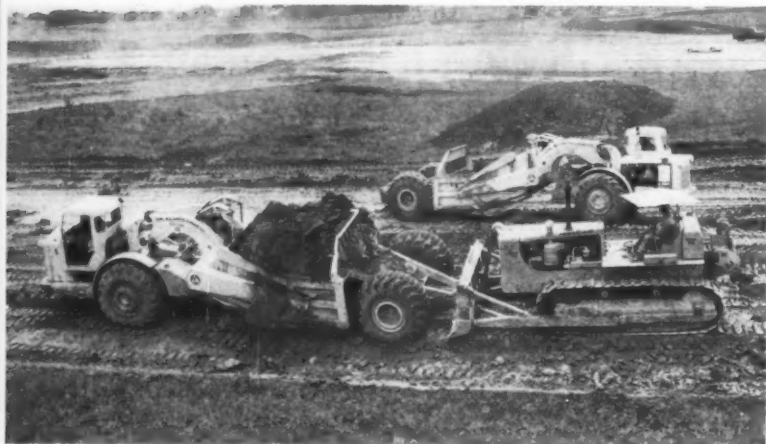
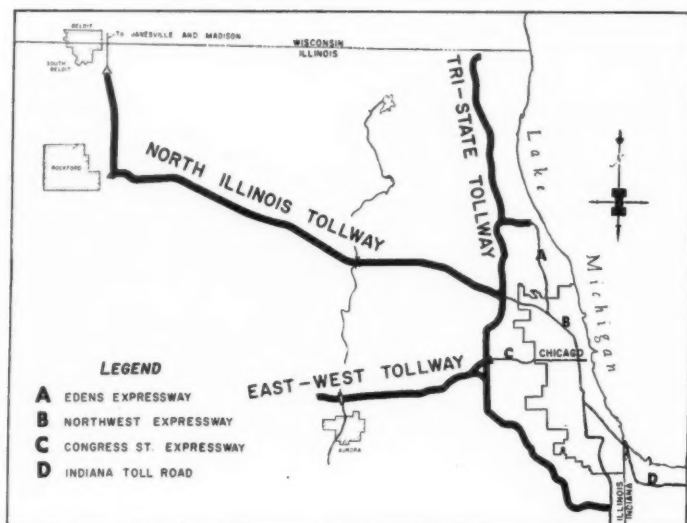


Rains fail to cut earthwork production on Illinois Tollway

Numerous peat bogs are excavated and filled with gravel; crusher turning out subbase material has system for controlling fines



On the Tri-State Tollway, a Cat DW21 that has bogged down while unloading is quickly pulled free by a big brother, the D9 push-tractor. This spread is operated by Valley Engineering Co., Elgin, Ill., under a subcontract.



In the Grand Ave. interchange area, where the cut is mostly clay, a Cat D8 tractor-dozzer push-loads a Euclid S12 scraper to a full load, while another S12 rolls in to start the loading cycle.

by BILL ALLEN
field editor

Despite a season of pouring rains, a huge task force of contractors, with spreads of the latest earthmoving machinery, is completing grading work on the 187-mile Illinois Toll Highway.

Contractors are at work on practically all sections of the three main routes, and most of the earthmoving will be completed this fall. Bridge work is moving fast; precast cylinder piles and prestressed girders are being used, and concrete structures are swiftly springing up at grade separations and river crossings.

On some of the first contracts let last September, concrete paving is already in progress. Completion of one



Peat bogs along the right-of-way call for special earth-handling. A dragline with Esco 2-yard bucket excavates unsuitable material and loads a Euclid S7 scraper, since the scraper cannot load in the usual way.



Peat areas are excavated to a solid bottom, then filled with pit-run gravel to build a fill for the roadbed. The International R-190 with Heil body dumps a load of gravel into a water hole.



This efficient crusher setup turns out subbase material for the Tri-State Tollway. The 16-inch-minus material goes by conveyor from the hopper to a double-deck vibrating screen, which sends larger rock through a Universal 20x36 jaw crusher, then onto a Universal 26x30 roll crusher.

CONTRACTORS AND ENGINEERS

of the routes—the North Illinois Tollway—is scheduled for July 31, 1958. The entire 187 miles will be ready for traffic by December 31, 1958.

Financed by a \$415 million bond issue, the new tollway system will consist of three routes leading to Chicago. The Tri-State Tollway runs from the Wisconsin border through and around the Chicago area, and is to connect with the Indiana Toll Road. A second section of the system, the East-West Tollway, will connect with Chicago's Congress Street Expressway and run west toward Aurora to connect with U. S. 30. The longest of the three routes is the North Illinois Tollway, which covers 76 miles between Beloit, Wis., and Chicago. At Chicago, the North Illinois Tollway connects directly with the Northwest Expressway, and at Beloit, it will connect directly with an interstate expressway to be built to Janesville and Madison and, eventually, to St. Paul and Minneapolis.

The toll highway will have an unbroken strip of concrete pavement without sharp curves and with wide lanes and overpasses. Unique in the highway's planning are the auto service areas to be built along the route. Restaurants and service stations will be constructed in bridge-like structures spanning the roadway. An access road from each direction will lead to these areas. A total of eight of these restaurant and service areas is to be built on the three routes, with provision for additional service stations at various points.

Work on sections

Typical of the many contractors working on sections of the highway is Arcole Midwest Corp., Skokie, Ill., which has a \$7,312,189 earthmoving, paving, and structures contract for sections N-6B and N-6C. The 9.5-mile stretch runs through rolling farm land near the eastern end of the North Illinois Tollway.

In this job, a total of 2,988,000 yards of earth must be moved to complete the 17 cuts and 21 fills called for by contract. Additional excavation is necessary in numerous peat bogs, the deepest 22 feet, which have to be dug out and refilled.

Earthmoving operations

On the main roadway, the contractor's eight Cat DW21 tractors and No. 470 scrapers handle the earthmoving. Push-loaded by two Cat D9 tractors, the DW21's move 18 bank-yard loads over a haul road, filling in the next area of the roadway. A Cat No. 12 motor grader maintains the road. In the center portion of the job, the material balances out, while on the west end there will be about 200,000 yards of waste. On the eastern part, any borrow needed will be taken from strips of land cut off from farms by the right-of-way.

During the 10-hour work day, the DW21's haul about 400 loads. Plans have been made to go to a two-shift operation, at which time two Caterpillar DW20 tractors with No. 456

(Continued on next page)



A Cat DW21 tractor-scraper dumps a load of clay during earthmoving on the tollway. Arcole Midwest plans to go to a two-shift operation soon, adding two more tractors and five more scrapers to its fleet.

**POWER
PACKED**
BY HUBER-WARCO
for
TOUGH JOBS



Huber-Warco Motor Graders handle all jobs efficiently and economically, with a minimum of costly "down-time" for blade adjustment on the job. The real tough jobs are a snap for the Huber-Warco Motor Graders.

Huber-Warco Motor Graders with standard transmission range from 75 to 123 horsepower.

Models with torque converter and power-shift transmission have a horsepower range of 102 to 195 h.p.

CHECK THESE HUBER-WARCO FEATURES

- ✓ Completely cab-controlled blade movement, 90° either side—no manual adjustments.
- ✓ Available with torque converter and power-shift transmission or with standard transmission.
- ✓ Mechanical steering with hydraulic booster.
- ✓ Easy to reach controls.
- ✓ High front and rear axle clearance.
- ✓ Retractable scarifier permits 360° blade rotation for back-up pass.

A PRODUCT OF HUBER-WARCO COMPANY, Marion, Ohio, U.S.A.



HUBER-WARCO COMPANY

MARION, OHIO, U. S. A.

Road Machinery

CABLE ADDRESS: HUBARCO

ROAD ROLLERS • MOTOR GRADERS • MAINTAINERS • GRINDERS

For more facts, use Request Card at page 18 and circle No. 219



A crawler tractor push-loads a Cat DW21 tractor with No. 470 scraper on one section of the North Illinois Tollway. During the current 10-hour day, Arcole Midwest Corp., Skokie, Ill., has the DW21's make about 400 trips on a 900-foot haul.

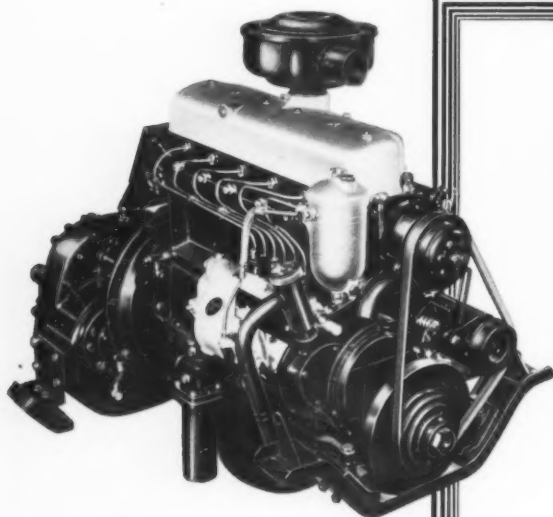
Gravel removed from Fox River Valley deposits is loaded into a portable plant by a Bucyrus-Erie dragline powered by a Cat D4600 generating set.



MERCEDES-BENZ DIESEL ENGINES

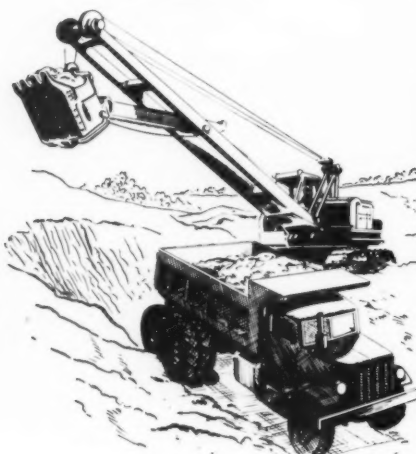
Now Available to Power Equipment in the CONSTRUCTION INDUSTRY

On all types of jobs, under all conditions of terrain and weather, the effortless performance and ultra-dependability of a Mercedes-Benz diesel helps keep costs down and profits up . . . Engines are now available in ratings from 36 to 1385 h.p. to power practically every machine used by the modern day construction industry.



Other Mercedes-Benz diesels available in 12 and 20 cylinders, Turbo and Super-charged, up to 3000 h.p.

All Mercedes-Benz diesel engines are 4-stroke and work on the time-proven, pre-chamber combustion process, assuring greatest possible quietness and smokeless combustion even under changing loads and different fuel qualities . . . Mercedes-Benz diesels are liquid cooled and equipped with an automatic



control guaranteeing complete operating safety, even under extreme climatic conditions . . . Other plus features include their easy handling, simple maintenance, economical fuel consumption and the small space required for installation . . . Unusually long life is a proven fact with Mercedes-Benz!

Several attractive territories
are available
to qualified distributors

UTICA-BEND DIVISION
CURTISS-WRIGHT
CORPORATION • UTICA, MICHIGAN

For more facts, use Request Card at page 18 and circle No. 220

(Continued from preceding page)

scrapers and five Euclid scrapers will be put into the cut. To obtain proper compaction, sheepfoot rollers, towed by an Allis-Chalmers HD-21, are constantly passed over the roadway, while a Cat D8 tractor pulls a disk plow over the area.

Overpasses, being built at four intersecting roads, make detour roads necessary while bridge construction is carried on. Each detour, running about three-fourths of a mile, is fine graded gravel on a stable clay base. Two Caterpillar D8 tractors with No. 463 scrapers, push-loaded by an Allis-Chalmers HD-21, are being used to build the roadbed through a peat bog. The D8's dump the clay directly into the unexcavated bog and build on it, since the detours are not permanent installations. If there is any sinking while traffic is using the detours, a Cat No. 12 motor grader will fill during its maintaining work.

Contractors on the Tri-State route are moving their share of the dirt under this tremendous program and are having their share of the difficulties. In addition to the rain, delays in acquiring right-of-way in a few northern sections of this route have slowed grading operations. Having to skip certain unacquired sections of the right-of-way has sometimes made it a problem for the contractor to move the dirt economically. The Toll Highway Commission, which has for the most part been able to keep right-of-way negotiators working ahead of the bulldozers, is taking steps to alleviate this situation.

Typical of the contractors working on the Tri-State route are Eric Bolander & Sons Co., Libertyville, Ill., and E. A. Meyer Co., North Chicago. These two firms, combining forces in a joint venture, hold the contract for the grading, paving and structures for two sections on the northern half of the route. One section, T-11A, is a \$3 million contract for a 4.0-mile stretch of road. T-13A, near the northern end of the Tri-State route, is a \$4.2 million contract for 4.8 miles of road.

Excavating peat bogs

Calling for special earthmoving treatment are the numerous peat bogs

CONTRACTORS AND ENGINEERS



As a Cat DW21 rolls along the fill for Valley Engineering Co., a Cat D8 dozer pulls an American sheepfoot roller and a Towner disk which compacts and aerates the dirt. The Cat No. 12 motor grader is shaping the fill.

that must be excavated and then filled with pit-run gravel to build up the roadbed. On one bog, which had to be cut out about 6 feet below the surface, the contractor used two rubber-tire S7 Euclid scrapers, which were loaded by a dragline. After the Euclids had cleaned out the bog hole to a hard clay bottom, dump trucks hauled in gravel from a nearby pit to fill the hole.

For the usual dirtmoving operations, the contractor made use of three spreads of equipment. One of these spreads, operated under a sub-contract by Valley Engineering Co., Elgin, Ill., moved about 9,000 yards of earth per day during good weather. Three Caterpillar DW21's, working with a Cat D9 push-dozers, made the short hauls to bring clay to the fill area.

Compacting the fill was a Cat D8 dozer pulling an American sheepfoot roller and a Towner disk. The sheepfoot brought the lower levels of the fill up to 95 per cent Modified Proctor compaction and the top 2 feet of the fill to a density of 100 per cent. The amount of moisture in the fill, which was generally greater than optimum, was reduced by a continual disking of the surface. Also working the fill was a Cat No. 12 motor grader and a D8 dozer. To reduce the effects of a heavy rain, the contractor kept the fill well crowned and had it sealed by a wobble-wheel roller at the end of the day.

Crushing subbase material

As the grading work continued, trucks hauled in crushed subbase material to a stockpile near the center of the job. The trucks made the 15-mile haul from a crushing plant set up at Lily Lake, Ill., by the Wauconda Construction Co., Wauconda, Ill.

Tight specifications, which called for less than 3 per cent of 200-minus fines, made the material hard to produce. But using a Universal 293QS crusher, the contractor has been able to produce as much as 200 yards per hour.

An important part of the crushing operation is the initial screening of the material before it enters the three-stage crushing action. The built-in Simplicity double-deck screens allow minus 1/2-inch material to bypass the crushers. About half of this

fine material is wasted, while the remainder is added to the material being discharged from the crusher. This initial screening permits accurate control on the amount of fines in the mixture, and also prevents fine material from overloading the crusher.

The Universal crusher is fed 16-inch pit material by a Marion 362 dragline. After the rock has been crushed to 1 1/2-inch material, it is carried by an Atlas conveyor to an overhead loading bin. Wasted fines

from the screen are carried by another conveyor to a separate loading bin.

This granular subbase material will be used to make up a 4-inch base course which will support a 10-inch slab of concrete. Below the 4-inch base course is 10 inches of selected subgrade material.

When completed, the road will have two 25-foot roadways to speed traffic over the road right-of-way, which is
(Concluded on next page)



The favorite on any job...

Le Roi CRD one-use bits

Here are inexpensive one-use bits that'll save you time and money on any drilling job. They've got good lasting and digging qualities in any kind of rock — and when they finally do dull, they're cheap enough so you can toss 'em away with no regrets. There's no lost time or motion toting 'em around for sharpening.

Special threadless taper fit makes them easy on and easy off the drill steel. Offset gauge feature permits faster drilling without binding. Your Le Roi distributor can quote on a can or carload — or write to Le Roi Division, Westinghouse Air Brake Co., Milwaukee 1, Wisconsin.

AT-712

LE ROI
NEWMATIC
AIR TOOLS





Subbase material, stockpiled at the Wauconda Construction Co.'s plant near Lily Lake, 15 miles from the Tri-State Tollway, is loaded into an International truck by a Michigan 175A. When the crusher is in operation, trucks load directly from an overhead bin fed by belt conveyor from the crusher.

At this Universal plant, 16-inch-minus pit material falls first on the Simplicity double-deck vibrating screen (top left). This passes 1/2-inch-minus material so as not to overload the 20x36 jaw and the 26x30 roll crushers.



(Continued from preceding page)



IMPERVIOUS CLAY COMPACTED TO 97% DENSITY IN SINGLE COVERAGE

For construction of an earth and clay dam for flood control, and relocation of Highway 85-87 north of Colorado Springs, 2,000,000 yards of earth had to be compacted into dense fill. Minimum compaction time was allowed, because this main route to Denver had to be opened to traffic as quickly as possible.

To speed the compaction job, two Cedarapids Vibratory Compactors were used. The Cedarapids combination of static weight and dynamic vibratory thrust through pneumatic tires has proved to be the fastest method of compacting fill to specified densities.

The 200-ft.-high dam contains well over a million yards of material. The inside was faced with impervious clay which had to be compacted to 97% density clay core. Fills were built in 8" and 10" lifts, watered to 12% moisture, and compacted to specified density in a single coverage.

Compaction time saved by utilizing the exclusive Cedarapids principle of impact-compaction through pneumatic tires played an important part in opening Colorado's new 4-lane highway for traffic just 4 1/2 months after the job was started, and well ahead of schedule.

These two jobs tell the money-saving story of

CEDARAPIDS VIBRATORY COMPACTORS

VIBRATORY COMPACTORS SPECIFIED BY CANADIAN GOVERNMENT FOR TRANS-CANADA HIGHWAY IN NATIONAL PARKS

Inland where severe winters and extremes of temperature increase road maintenance problems and costs, often to prohibitive degrees, engineers recognize the importance of road bases and subbases that are properly compacted to provide a permanent structural foundation resistant to the effects of alternate freezing and thawing. That's why Canadian Government specifications call for Vibratory Compactors on Trans-Canada Highway work in National Parks.

In Yoho National Park in the Canadian Rockies, Mannix Ltd. of Calgary used a Cedarapids Vibratory Compactor to assure not only lower future highway maintenance costs, but also to cut construction costs of the original base because fewer coverages and less time are required with the Cedarapids unit.

Square M Construction Ltd. of Edmonton used two of their four Cedarapids Vibratory Compactors to accomplish the same results on the Banff-Jasper section of the highway.



Cedarapids
Built by
IOWA

The ONLY
pneumatic-tired compactor which
combines dynamic vibratory thrust
with static weight to exceed
specified densities in one or two coverages

Patent No. 601110

IOWA MANUFACTURING COMPANY, Cedar Rapids, Iowa, U. S. A.

For more facts, use Request Card at page 18 and circle No. 222

125 feet from center on each side. Ultimately, the pavement will be widened to six lanes; part of the 54-foot center will be used for the two additional 12-foot lanes. Shoulders of this new road will have 11 feet of 3-inch bituminous concrete on the outside and 5 feet on the inside.

Personnel

Joseph K. Knoerle & Associates, Inc., is the consulting engineering firm for the over-all project. Under its supervision are the 23 section engineers responsible for the design and supervision of construction within their own sections. Tecon engineers, Inc., is the section engineer for the Arcole Midwest contract. Roberts & Schaefer Co., Rummel, Klepper & Kahl are the section engineers for section T-13A.

Supervising the Arcole Midwest operation are superintendent Ward Watson, project manager Victor Verdico, and grade superintendent Earl Meyers. For the Eric Bolander and E. A. Meyer firms, John E. Bolander and Don Vanderspool, respectively, are the superintendents for the contracts.

The chairman of the Illinois State Toll Highway Commission is Austin L. Wyman. Charles L. Dearing is executive director of the Administrative staff, and George L. Jackson is chief engineer.

THE END

Goodyear promotes three

The Industrial Products Division, Goodyear Tire & Rubber Co., Akron, Ohio, has appointed R. J. Burns assistant general manager of the Metal Products Division. Burns, formerly district manager of the St. Louis, Mo., branch is replaced by H. F. Schweitzer. W. A. Cooper, previously assistant district manager at the New York City branch, takes over Schweitzer's former post as district manager at Charlotte, N. C.

Childers opens new office

Howard G. Holzum, who resigned as vice president of Childers Mfg. Co., Inc., Albuquerque, N. Mex., has moved to Knoxville, Tenn., to establish an Eastern division office for Childers. Holzum was instrumental in the development of Childers' sales organization.

CONTRACTORS AND ENGINEERS

Firm beats problems to build flood-control wall requiring vibrated surface

Completing three miles of flood-control wall at Bradford, Pa., was no problem for Elmhurst Contracting Co., New York City, but meeting engineers' requirements for a vibrated surface on the 1½ to 1 slope of the wall was another matter.

A Stow Model JS vibrating screed, 15 feet long, handled the job, with special engine mounting brackets holding the engine in a vertical position while the beam remained perpendicular to the forms.

But in screeding from top to bottom, crews found the concrete flowed ahead of the berm too fast. It was also difficult to screed from the bottom up, because, even with end rollers, the weight of the screed and the drag of the concrete made it almost impossible to pull the screed by hand. The Elmhurst firm solved the problem by hooking the cable of a truck-mounted power winch to the screed so that the equipment could be towed along.

As buckets of concrete were placed to the approximate height of the 15-foot-wide and 18-foot-high sections, the screed engines were started up at the bottom of the slab. The winch cable was attached to an eyebolt in the center of the beam. If there was no room for the tow truck on the top of the bank, a sheave was provided at the top. The wire cable ran over the sheave and back to the tow truck at the bottom of the bank. The Stow screed made only one pass to strike off and vibrate the concrete slab. When the screed reached the top, it was attached by eye bolts to the cable on a crane and lifted to the bottom of the next section. A final finish was obtained by hand troweling.

Interstate system adds 2,102 miles of roadway

An additional 2,102 miles of new routes have been added to the National system of Interstate and Defense highways. Of this, 1,000 miles represent an expansion of the Interstate Highway System authorized by the Federal-aid Highway Act of 1956. Addition of another 1,102 miles was made possible when a more direct re-routing of some roads in the 40,000-mile system saved this amount of mileage. More than half the 48 states share the added miles.

Eimco appoints Prickett

Eimco Corp., Salt Lake City, Utah, has named J. Lyle Prickett tractor sales and service specialist for the company's branch office in Pittsburgh, Pa. Formerly purchasing agent for Eimco Process Engineers, Inc., San Mateo, Calif., Prickett transferred to tractor sales and service last July, and has spent the interim in a factory training program.

Prior to joining Eimco Process, he was an Allis-Chalmers dealer in Crescent City, Calif.

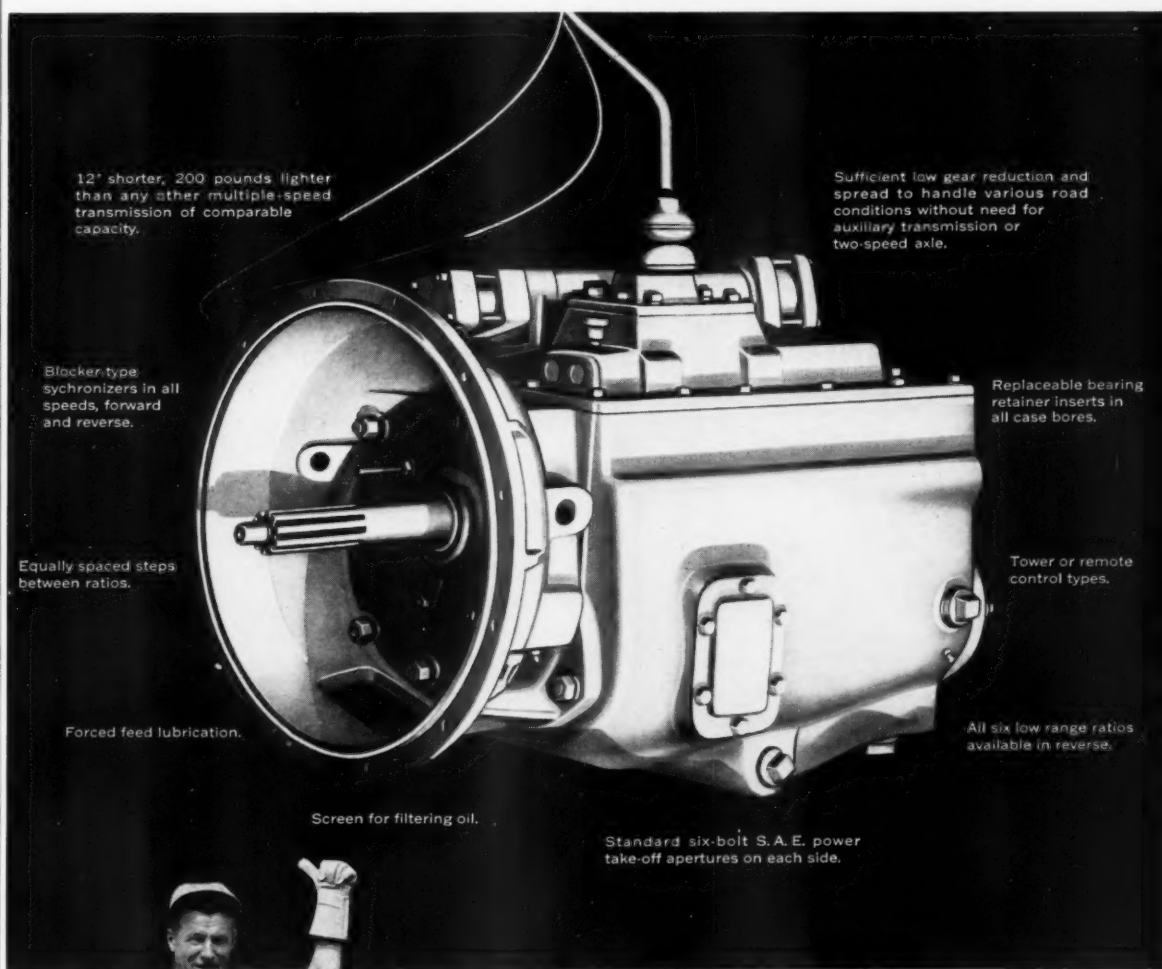
Making one pass up the flood-control wall at Bradford, Pa., the Stow screed strikes off and vibrates the 8-inch-thick concrete. The screed, with special brackets holding the engines vertical, is pulled up the 1½ to 1 slope by a truck winch.



Marion Power Shovel names three to engineering staff

Merle V. Lashey, Jack F. Weis, and Robert W. Bergmann have been appointed to the engineering staff of Marion Power Shovel Co., Marion, Ohio. Lashey, formerly assistant chief engineer for large and intermediate-size machines, is now manager of engineering.

Weis, previously chief electrical engineer, succeeds Lashey in his former post. Replacing Weis as chief electrical engineer is Bergmann, former assistant chief electrical engineer.



The driver with the rig that really delivers says:
"Look at these 12 big profit features in the new Spicer SYNCHRO-MASTER TWELVE"

Nothing ever like it before in efficient power transmission for heavy-duty vehicles! Nothing ever like it before to increase driver and vehicle productivity... to reduce initial investment cost and maintenance expense.

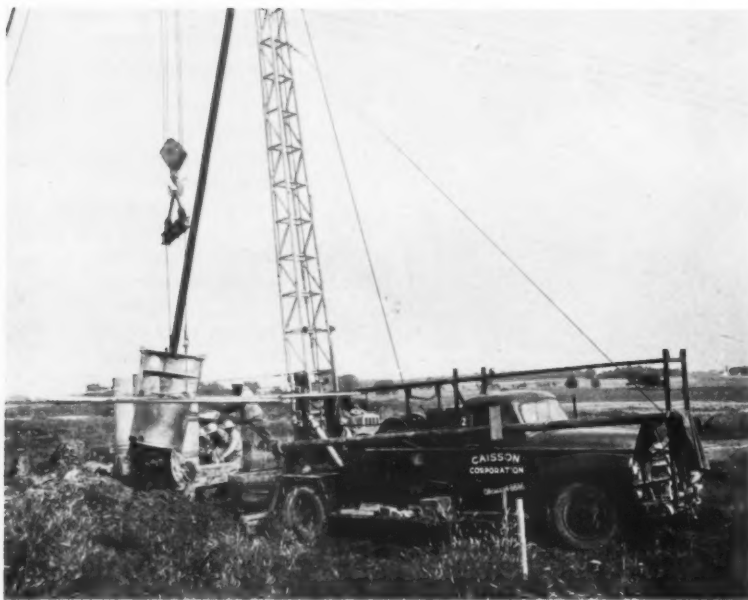
Ask Dana engineers to help you to adapt this revolutionary new Spicer Transmission to your heavy-duty truck requirements, for new standards of economy and performance.

DANA CORPORATION • Toledo 1, Ohio
DANA PRODUCTS Serve Many Fields

AUTOMOTIVE: Transmissions, Universal Joints, Propeller Shafts, Axles, Power-Lok Differentials, Torque Converters, Gear Boxes, Power Take-Offs, Power Take-Off Joints, Clutches, Frames, Forgings, Stampings.
INDUSTRIAL VEHICLES AND EQUIPMENT: Transmissions, Universal Joints, Propeller Shafts, Axles, Gear Boxes, Clutches, Forgings, Stampings.
AVIATION: Universal Joints, Propeller Shafts, Axles, Gears, Forgings, Stampings.
RAILROAD: Transmissions, Universal Joints, Propeller Shafts, Generator Drives, Rail Car Drives, Pressed Steel Parts, Traction Motor Drives, Forgings, Stampings.
AGRICULTURE: Universal Joints, Propeller Shafts, Axles, Power Take-Offs, Power Take-Off Joints, Clutches, Forgings, Stampings.
MARINE: Universal Joints, Propeller Shafts, Gear Boxes, Forgings, Stampings.

Many of these products manufactured in Canada by Hayes Steel Products Ltd., Merriton, Ontario
 For more facts, use Request Card at page 18 and circle No. 223





Of the three Calweld earth-boring rigs on the Barrington Road overpass, a job that typifies bridge work on the North Illinois Tollway, two are Model 150A's like this one. The bucket is hinged to allow clay to dump.



The third Calweld rig, a 200A, is mounted on a Chevrolet 10500 truck. Like the Chevrolet carrying the Model 150A, it is equipped with an American 2-drum hoist driven by a Chrysler engine.



Cylinder piles support Illinois Tollway bridges

Prestressed concrete piles, 3 feet in diameter, serve as both footings and columns on 93 toll road bridges

(Additional photo on front cover)



When a hole has been drilled, and the last 4 feet belled out to 7.5 feet, this Smith Mixer, mounted on a White truck, chutes concrete into the bottom 4 feet.



A Koehring 445 motor crane of 45-ton capacity guides a 32-foot-long, 8-ton cylinder pile into the hole. Cable is secured to one of the two steel collars which are later used to support the pile in the hole.

In a departure from conventional design, cylinder piles are serving as both footings and columns for piers of bridges being constructed on the Northern Illinois Toll Highway. These cylinder piles of prestressed concrete are being used for the substructures of 93 bridges on the road.

To keep pace with construction on this tremendous tollway project, Raymond Concrete Pile Co. is setting the piles at a rate of about three structures every week. The big 3-foot-OD piles are placed in drilled holes and either driven to final depth or set in concrete in the bell of the hole. Connecting the tops of the piles is a poured-in-place cap.



Men insert Dunlap screw-type jacks under the four ends of the steel collars to hold a pile 2 feet from the bottom of the hole while concrete sets up at the bottom.



After the concrete has set up sufficiently, backfilling with sand is handled by a Cat No. 955 Traxcavator. This material is used to fill in around the pile.



In prestressing the piles, twelve tensioning wires are drawn from coils and run through a threading machine on a bench that pushes them through one of the eight holes in the 4 1/2-inch cylinder wall. When wires are in tension, grout is forced through the precast holes.

Bridge work, grading, as well as a certain amount of paving, are now under way on virtually all of the Illinois tollway's 187 miles. Construction, which started last September, is spread out over the three main routes of the Toll Highway: The 83-mile Tri-State Tollway, linking Indiana and Wisconsin and circling Chicago; the 76-mile North Illinois Tollway, running northwesterly to Rockford, Ill., and Beloit, Wis.; and the 28-mile East-West Tollway from Chicago to Aurora.

The Illinois State Toll Highway Commission has awarded \$260 million in major construction contracts. These include \$224 million for roadway and bridge construction and \$36 million for such supply items as structural steel, precast and prestressed concrete beams and piles, right-of-way fencing, and cylinder piles.

In spite of one of the rainiest springs ever experienced in this section, most of the grading will be completed soon. (See pg. 24.) Completion of the North Illinois Tollway is scheduled for July 31, 1958, and the entire 187 miles by December 31, 1958.

Bridge work goes fast

Impressed with the results of building an experimental bridge resting on cylinder piles, the Illinois State Toll Highway Commission awarded contracts for 93 of these structures. Raymond Concrete Pile Co. is furnishing and erecting the 60,000 linear feet of piling in the bridges. There are 80 structures being built under a direct contract with the Commission and 17 being built under subcontracts.

Using three spreads of equipment, Raymond is able to set the piles for three bridges in about one week. Piles are placed in drilled holes and set in concrete or driven to sufficient bearing. Fairly typical of the operation where the piles are set in concrete is the placing of the 32-foot piles on the Barrington Road overpass on the North Illinois Tollway.

This bridge, which carries two 27-foot roadways over the tollway, contains four spans with a total length of 215 feet. The two 65.5-foot central spans are flanked on each side by a 42-foot span connecting to the abutment. Six cylinder piles support the twin cap for each pier. Forming the superstructure of the bridge are ten prestressed-concrete I-beams, which carry a poured-in-place concrete deck.

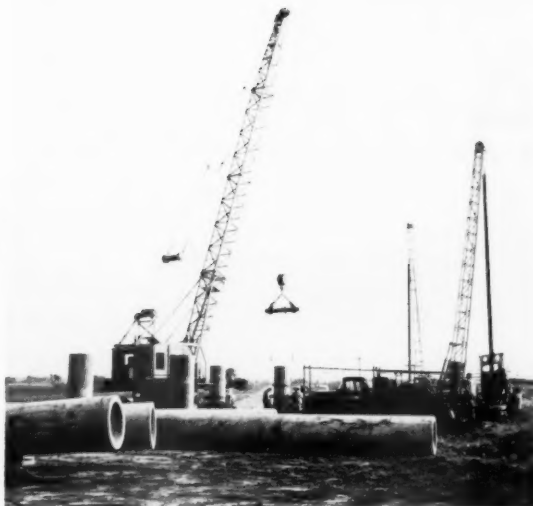
Earth-boring rigs move in

An important part of the operation is the drilling of the 3.5-foot holes for the piles. As there is only a 3-inch clearance between the outside of the pile and the hole, a considerable amount of care must be taken to drill the holes accurately. Caisson Corp., which has the subcontract for the drilling, uses from one to three Calweld earth-boring machines per spread.

On this job, three Calweld rigs were used to drill the 18 holes to an ap-

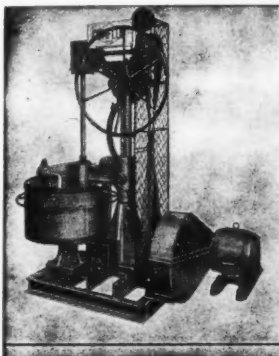
(Continued on page 34)

Piles are set almost as soon as the holes are drilled. The Koehring 445 setting a pile here works close to the two Calweld Model 150A earth-boring machines.

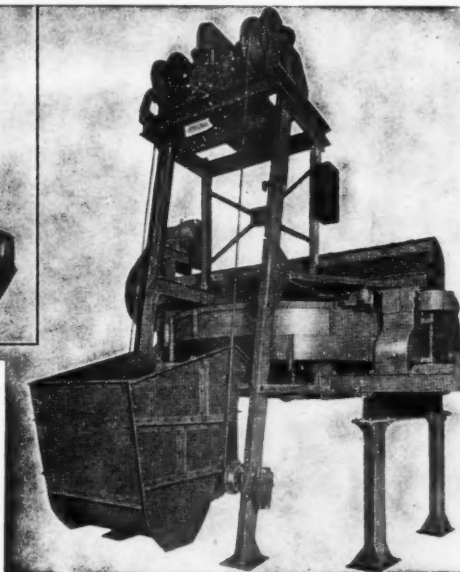


CUMFLOW SCIENTIFIC MIXING SYSTEMS

Manufactured by THE LINER CONCRETE MACHINERY COMPANY, LTD., of Gateshead, England



CUMFLOW mixers are available in 6 sizes, from 2 cu. ft. lab. models to 50 cu. ft. production models. Stationary or portable, with or without skip. Power optional. Mixers furnished for electric, gasoline or diesel power operation.

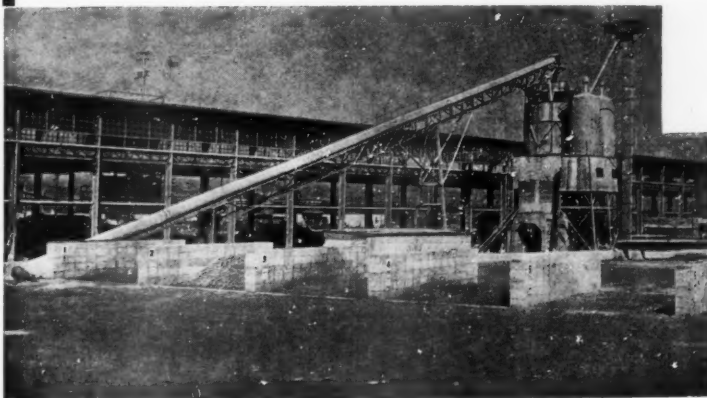


The CUMFLOW SCIENTIFIC MIXING SYSTEM is designed and built expressly for the precast and prestressed concrete industries. Using this system you can obtain from 15 to 40 uniformly mixed batches of concrete per hour. CUMFLOW mixes any type concrete desired—slump, plastic or wet mix, lean or rich mix, fine or coarse mix, light or heavy mix—with 100% efficiency and uniformity.

The CUMFLOW SCIENTIFIC MIXING SYSTEM consists of a mixer star supported eccentrically over the mixing pan. The star revolves at a relatively high speed. Blades attached to the star are arranged so as to obtain the maximum number of points of intersection during revolution. Batched materials are fed continuously to the mixing star by the pan's revolutions and are mixed evenly and thoroughly in a matter of seconds. Further mixing action is obtained by fixed side blades. This unique system gives an absolutely clean pan after each discharge—no part of the mix is carried over to the next batch.

CHECK THESE IMPORTANT ADVANTAGES

- Every batch uniform; no variations whatsoever
- Greater strength concrete with minimum cement content
- Balling or segregation impossible
- Self-cleaning pan
- Up to 11,700 psi concrete possible
- From 10% to 25% savings in cement content



The Basalt Rock Co., Inc., Napa, California, is one of the many North American users of LINER CUMFLOW SCIENTIFIC MIXER SYSTEMS.

Distr. and agent in North America for the LINER CONCRETE MACHINERY CO., LTD., Gateshead, Eng.

A few choice dealerships in the United States are still available. Inquiries from qualified firms invited.

CUMFLOW

MIXER ENGINEERING

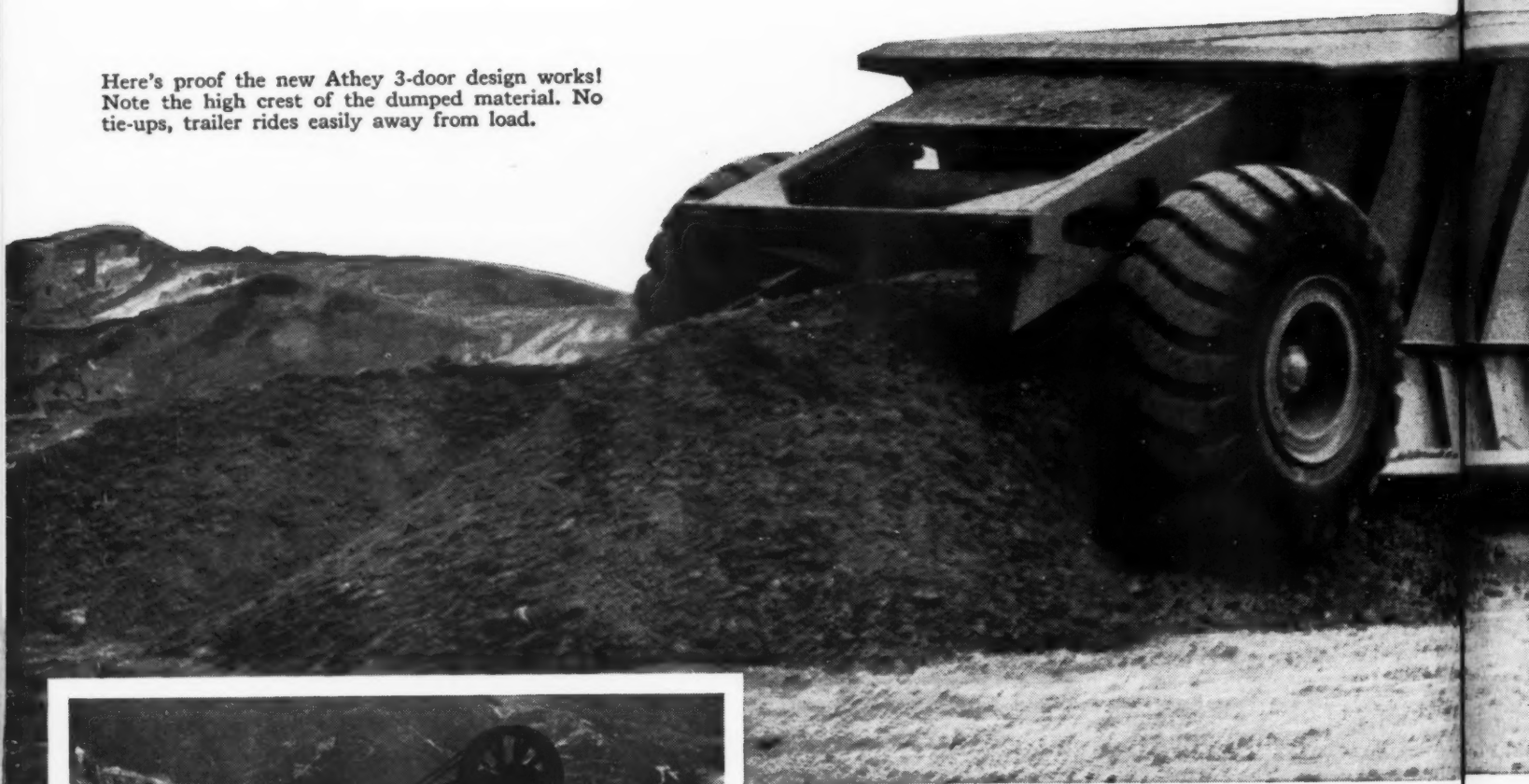
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9201 SAN LEANDRO STREET
OAKLAND 3, CALIFORNIA
5961 YEW STREET
VANCOUVER 13, BRITISH COLUMBIA, CANADA

A

kindo

Here's proof the new Athey 3-door design works! Note the high crest of the dumped material. No tie-ups, trailer rides easily away from load.



*Low loading height, easier to load, better stability and roadability

Low loading height of 8' 9 1/2" (average) and low center of gravity are additional PW20 advantages. Shovel cycles are faster, hourly production increased. And you get better roadability at high speeds, on turns, with the PW20's low center of gravity.

*Trailer capacity nearly 4 times trailer weight with "T-1" steel

The latest in the earthmoving field! It's the new Athey PW20 Bottom Dump Trailer and it's loaded with new design features.

Constructed of high-strength "T-1" steel, the PW20 is trimmed of excess weight, capable of handling 40-ton payloads at less cost. The capacity of the PW20 is nearly 4 times the trailer weight.

An exclusive high arch axle and 3-door design eliminate resistance of the dumped material. The load is dumped through three doors; two extra wide bottom doors and a rear door. The unit rolls easily away from the dumped load, without tire spinning, cutting time from your dumping cycles.

Combined with the Cat DW20 Tractor, the new PW20 offers you big capacity payloads, high-speed hauling, fast loading, instantaneous dumping, high production and low maintenance.

Get the complete story on the Athey-Cat PW20-DW20 Bottom Dump. Your Athey-Caterpillar Dealer can furnish you all the facts, or write direct for the new PW20 booklet.

End of Bottom Dump!



**ATHEY-CAT
PW20-DW20**

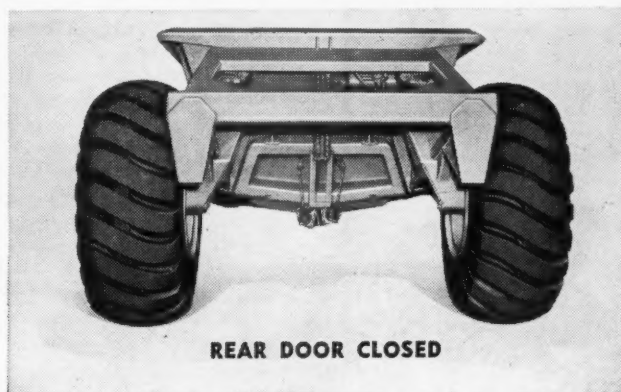
***New, exclusive 3-door design — high arch axle end dumping tie-ups**

A rear discharge door, extra high clearance, and arch axle design are exclusive PW20 features. The PW20 rides away from the load with minimum resistance from the dumped material. You have no more "bogging down" at the dump common with old fashioned bottom dump rigs. You reduce "pushing" and save dumping time. Dumping is instantaneous and clean with 6-foot-wide bottom doors, rear door and steep sloping body sides. And if you want to spread or control the load, you can do so with the PW20's dependable, hydraulic-actuated dumping mechanism. No other hauling unit has the engineering features of the PW20 — features that add up to increased production at lower costs per yard.

ATHEY PRODUCTS CORPORATION
5631 West 65th Street, Chicago 38, Illinois

WRITE TODAY FOR NEW PW20 BOOKLET

THE *Complete* TRAILER LINE... by the Leader



REAR DOOR CLOSED

Rear door positively locked in place by cable pressure. Complete insurance against haul road spillage. As bottom doors open and cable slackens . . .



REAR DOOR OPEN

Spring loaded rear door swings upward providing clear opening; material flows out behind wheels.

Athey



When possible, the big piles are driven to 200-ton bearing. This is the case on the Harlem Road structure. The Lorain 35-ton Moto-Crane is positioning the pile before driving operations are started.

proximate depth of 21 feet. On the last four feet of each hole, a special drill bucket belled out the bottom of the hole to 7.5 feet. Drilling through the hard clay slowed down occasionally when boulders were encountered that had to be removed by hand.

Setting piles

The 28 and 32-foot long piles were placed as soon as drilling was done. The first step called for the bottom of the hole to be filled with about four feet of ready-mix concrete. Then a big Koehring 445 truck crane lifted an 8-ton pile and held it suspended about two feet from the bottom of the hole. Two transits lined in the pile as

workmen with wedges adjusted it into position.

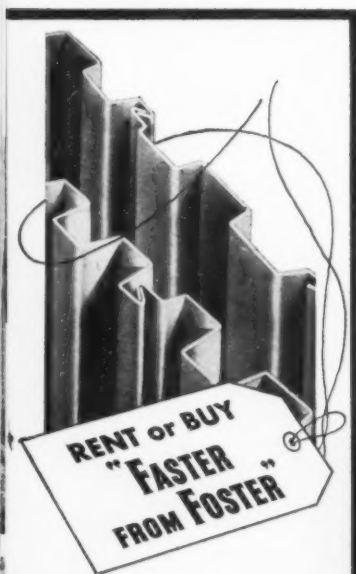
The pile was held at least two feet off the bottom of the hole by four jacks bearing on the ends of two steel collars clamped around the pile. The jacks, which rest on crossed timbers, allowed the pile to be adjusted to its correct height. When the concrete had set up enough, a Caterpillar 955 Traxcavator used sand to backfill the void between the outside of the pile and the wall of the hole.



Using wedges against the side of the 3.5-foot-diameter hole, workmen position a pile, which is being "lined in" by a pair of transits. This pile will have a concrete footing.

FOSTER LIGHTWEIGHT PILING

the best, low-cost protection for light load excavation



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FROM FOSTER

We'll deliver to your job site with the fastest service available . . . any lengths you require, from Foster warehouse stocks. Buy your basic needs for your regular jobs and fill in for special installations by using our low cost Rental Plan.

So many features of the new Foster Lightweight Piling appeal to the contractor looking for efficient job techniques. This is the most economical sheeting available for lighter jobs . . . offers greater strength pound for pound than any other lightweight steel piling.

There's no need for special rigs. Easier driving and easier recovery, less bracing, minimum damage to paving around the job when piling is pulled . . . all these advantages make for all-around lower job costs. And Foster Lightweight Piling is easy to handle! New design Interlock cannot jam, locks rigidly when installed, yet comes apart easily. Learn all about this modern answer to economical shore and pier protection, sump pits, trenches, abutments, bulkheads, cofferdams. Write for catalogs or quotations on your next job.



L.B. FOSTER CO.

PITTSBURGH • NEW YORK • CHICAGO • HOUSTON • ATLANTA • LOS ANGELES
STEEL SHEET PILING • PIPE PILES • H-BEARING PILE • STEEL PIPE • RAILS • ALUMINUM PIPE • BRIDGE RAILING



The cap, which is poured in place, includes the concrete poured to fill the top 4 feet of the piles. Apart from a small amount of concrete at the top and bottom of the 4½-inch walled pile, the cylinder remains hollow.

Driving the piles

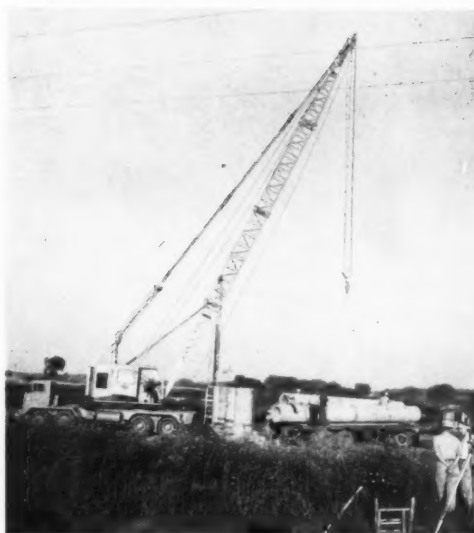
When subsurface conditions are suitable, the big piles are driven to a bearing that can withstand a 200-ton load. First, however, a hole is drilled with its top section 6 inches larger than the size of the pile and its lower section 2 inches smaller than the size of the pile. When the ground gets too hard to drill, the pile is set in the hole and driven to final bearing.

Pile-driving is done with a Raymond 000 single-acting steam hammer. No leads are necessary, as a collarlike extension from the hammer encircles the top of the pile. The bottom section of the pile is held tightly in place in the undersized hole. A double wood cushion protects the top of the concrete pile being driven. Since it is generally not possible to drive the piles to exact grade, their tops are cut off with jackhammers. The longest pile driven measured 88 feet.

Prestress

An unusual process is being used to spin and prestress the cylinder piles at the Lock Joint Pipe Co. plant in South Beloit, Ill. It differs from the

A Koehring crane lifts 32-foot sections of piling trucked from the Lock Joint Pipe Co. plant at South Beloit, Ill., by a Fruehauf trailer pulled by an International truck.



usual prestressing process in that the tensioning wires are fed through pre-cast holes in the 4½-inch walls of the cylinder. While the wires are in tension, grout is forced through the pre-cast holes to make the bond between the pile and the wires.

The 16-foot lengths of pilings are cast by a spinning process which throws the concrete to the outside of a rotating steel form. Cast in the concrete is a cage of reinforcing steel consisting of ¼-inch spiral steel and ¼-inch longitudinal rods. Smooth 1⅝-inch rods, which are later removed, provide the core holes for the prestressing wires.

After the cylinder sections have been cured, they are placed end to end to make up the pile. The cored holes are aligned radially with special roller equipment, which is also used to move the cylinders longitudinally. A plastic compound having a greater ultimate strength than the concrete is placed on the face of each section to bond individual lengths together.

Automatic machines feed 12 No. 6-gage steel wires through each of the 8 core holes. Hydraulic jacks are used to stress each group of wires to 15,000 psi. Grout is pumped into the cored holes under high pressure. After the grout has set, the wires are burned off flush with the concrete.

Personnel

Joseph K. Knoerle & Associates, Inc., is the consulting engineering firm for the over-all project. Under its supervision are the 23 section engineers responsible for the design and supervision of construction within their own sections. For the Barrington Road overpass, the section engineer is Tecon Engineers, Inc.

The chairman of The Illinois State Toll Highway Commission is Austin L. Wyman. Charles L. Dearing is executive director of the administrative staff, and George L. Jackson is chief engineer.

C. B. Kiesel is project manager for Raymond Concrete Pile Co. R. G. Majhor is general superintendent, and C. T. McGovern is construction superintendent.

THE END

A new edition of the official highway and touring map of Saskatchewan is available from that western Canadian province's Tourist Branch at Regina.

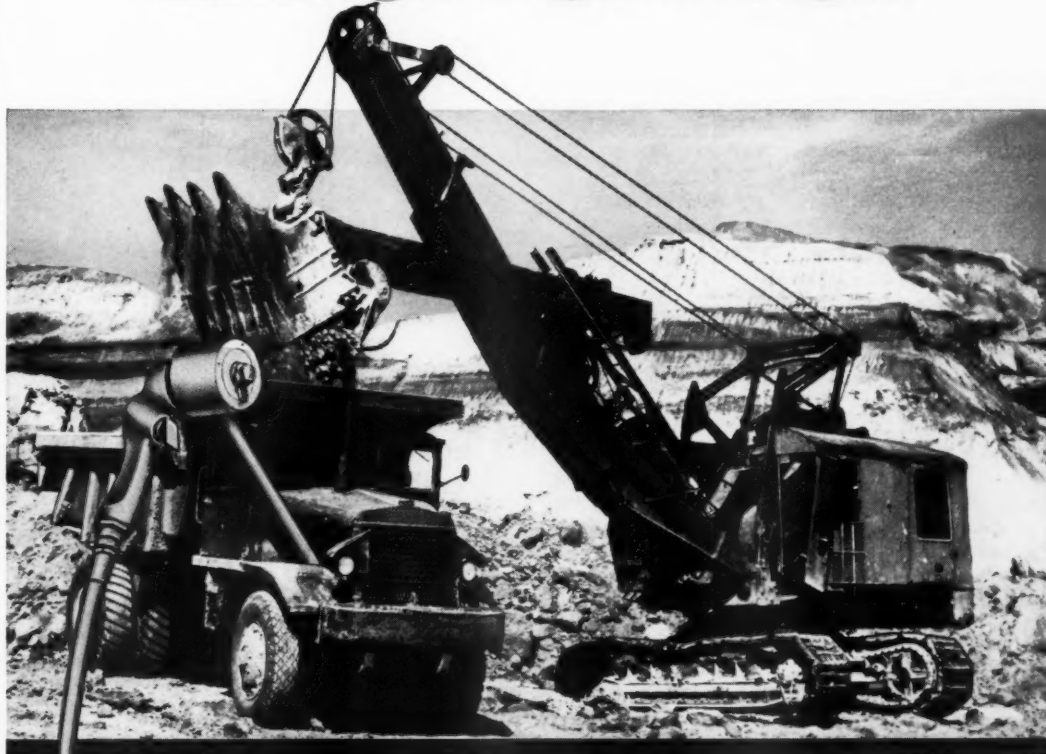
NOVEMBER, 1957

Australian firm to produce Clark Equipment lines

The Clark Equipment Co., Benton Harbor, Mich., has formed a new firm, Clark Equipment Australia Pty. Ltd., to manufacture and distribute the Clark line of material-handling industrial trucks and the Michigan line of construction machinery in Australia. The company is owned jointly by Clark Equipment International, C. A., and Tutt Bryant, Clark distributor of fork-lift trucks in Australia.

The new company will absorb Australian Industrial Trucks Ltd., a firm formed by Tutt Bryant to handle fork-truck manufacture. Plant facilities are located at Hornsby, a suburb of Sydney, New South Wales.

Two-fisted for tough going!



Your Diesel engines run better, last longer when you change to Sinclair Super TENOL® Motor Oil.

Sinclair Super TENOL safeguards your equipment against the damaging effects of high temperature and continuous stop-and-go operation.

Sinclair Super TENOL withstands such punishing conditions because it's specially made for tough going. High viscosity index base oils, combined with an exclusive formula of selected additives, give your Diesel the greatest protection against varnish, sludge, rust and acid corrosion.

Refill now with Sinclair Super TENOL Motor Oil. Contact your local Sinclair Representative for further information, or write Sinclair Refining Company, Technical Service Division, 600 Fifth Avenue, New York 20, N. Y. There's no obligation.

Dino, the Sinclair Dinosaur, says:



SINCLAIR SUPER TENOL

For more facts, use Request Card at page 18 and circle No. 227

Fast subbase production cuts threatened delay in paving on North Illinois Tollway



Getting all possible speed into the production of 90,000 cubic yards of granular subbase material was the chief problem facing CKG Associates this summer.

A considerable amount of grading had been finished on its 4.2-mile stretch of the North Illinois Tollway near Elgin, and paving was waiting to be started as soon as weather permitted, but the gravel deposits to be used had been dampened by a lengthy rainy period that did not end until after summer had started. The joint-venture combine, made up of Kenny Construction Co. and Contractors Material Co., both of Chicago, with Louis Garavaglia of Center Line, Mich., had to keep subbase production at a peak so that concrete paving would not be delayed.

Work tough formation

The joint venture, which is also handling seven other contracts on the toll road, obtained the raw material for the subbase from a tough glacial deposit. This ran fairly high in a clay cover, part of which was mixed with the upper portion of the pit gravel. But the firm used a new Pioneer 45-VE portable crushing-screening plant, which removed this material without going below the 150 cubic-yard-per-hour pace scheduled. The pit also posed a 50 per cent crushing ratio problem in oversize glacial cobbles, but the plant's 10x36 jaw and 40x22 roll crusher units were able to handle this material easily.

Specifications called for 100 per cent of material passing the 1½-inch screen; 90 to 100 per cent passing the 1-inch screen; 60 to 90 per cent passing the ½-inch screen; 30 to 70 per cent passing the No. 4 mesh; 15 to 40 per cent passing the No. 16; 8 to 25 per cent passing the No. 40; and 0 to 3 per cent passing the No. 200. And engineers watched the fine fractions carefully to make sure that unwanted clays did not get into the finished material and disturb the plasticity index values of the subbase stone.

Plant at top production

The joint-venture firms started the crushing-screening job right by dozing about 30 inches of clay topsoil



The hopper of the Pioneer 45-VE portable plant is fed with raw material by a Bucyrus-Erie 38-B with 2-yard dragline bucket. A conveyor carries the material to the third deck of the plant.

Don't let an old-style single-action loader see how a 4-in-1 multiplies your

You've got a gun in your back two ways—with an old-style, single-action "dip-and-dump" tractor loader!

It holds you up on price, by giving you only the one machine action for your money. It hijacks your profits, by drastically limiting your job range and capacity.

Now, see what a contrast, in multiplied value and earning power, an International Drott 4-In-1 offers you!

4-machine utility... one-machine price!

An International Drott 4-In-1 gives you four built-in, multiple-duty, big-capacity machine actions, for only a one-machine price. Your fingertip command, through the "machine-selector" lever, instantly puts any 4-In-1 action you need at your service.

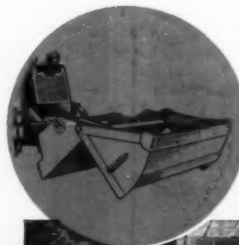
Skid-Shovel action gives you exclusive, "concrete-smashing" pry-action break-out—with famous bucket-heaping, ground-level roll-back. "Carry-type scraper" is your accurate grading, stripping, spreading, or compacting action. Clamshell action provides one-gulp "stand-and-fill" ability, plus hopper-high, self-cleanout, bottom dumping. Bulldozer action delivers aggressive, big-yardage, earth-rolling ability.

Ease into the foam-cushioned seat—prove that your 4-In-1 investment will multiply your job-taking, money-making ability. And compare the performance protection of exclusive shock-swallowing Hydro-Spring to unprotected hose-bursting, machine-mauling "lunge-and-lift" design. Ask your International Drott Distributor to demonstrate the top buy by far in the construction machinery world: the 4-In-1 size that fits your needs!

International Harvester Company, Chicago 1, Illinois
Drott Manufacturing Corp., Milwaukee 15, Wisconsin



INTERNATIONAL
DROTT



As a space-saving clamshell, this TD-6 4-In-1 "surrounds" a pile of loose dirt—gives speedy, space-saving "stand-and-fill" action. The 4-In-1 is backfilling, grading, and landscaping on the grounds of new Canisius high school, Buffalo, New York—for Michael Wagner & Sons, Inc.





◀ Crushed subbase material is delivered to a stockpile near the plant by a Reo 6-yard dump truck.

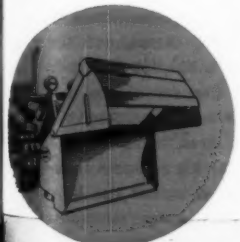
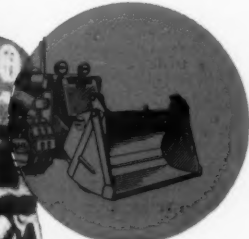


A Pettibone Mulliken 250 tractor shovel—one of the biggest in the field—handles the finished material that has been stockpiled.

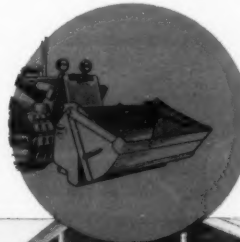
der hold you up...

our profit-range by four

Doing as much as three power shovels and a dragline, this TD-18 4-In-1 dug up, and loaded, up to 1,700 feet of old concrete pavement daily—for Henry E. Berghuis, Prinsberg, Minnesota. Famous International Drott pry-over-shoe break-out action makes the big difference over other rigs!



Earth-rolling 4-in-1 bulldozing action saves Lotz Excavating Service, Chicago, Illinois, the time and expense of putting a blade-equipped unit on the job! See how their TD-14 4-In-1 strips heavy, hard-frozen sod from a homesite—to dig a 150 cu yd basement, in only 2¼ hours (average).



"Carry-type scraper" grading with inch-close accuracy is another job-getting 4-in-1 specialty that single-action rigs can't possibly do. This TD-9 4-In-1 is making big savings by putting new home landscaping on a "production-line" basis. You can also strip and spread with this easy-to-control action!



cover ahead of primary excavation. If the clay was pocketed, it was scooped out by dragline, as pit excavation progressed, and wasted by dump truck.

The firm first started feeding the plant with a 1½-yard dragline, which handled material direct from the pit to the feed hopper on a 90-degree swing cycle. Later, a 2-yard machine was used, which made a swing to the plant every 20 seconds.

The dragline, located 35 feet from the feeder hopper of the plant, excavated pit run material from plant level to a point 18 feet below the water table. Glacial cobbles, gravel, and sand were then dumped by the dragline bucket into the feeder trap served by the Pioneer 30G plate feeder. This feeder delivered the material to a Pioneer 30-inch conveyor running to the third deck of the plant. All acceptable fines dropped from here through the bottom deck to a Model 750 conveyor, which led to bin storage.

Oversize suitable for roll crusher reduction was drawn off into the 40×22 rolls, while all larger rock dropped off to the 10×36 jaw crusher. Material from both jaw and roll crushers was routed to a bucket wheel at one end of the plant, hoisted to a top conveyor, and dumped on the plant's top deck. Both this deck and the feed deck were used to screen the specification-size material.

Throughout this work, and despite the high amount of abrasion needed to reduce the material, only routine maintenance was needed to keep the plant working efficiently. Roll crusher shells were built up with manganese rod and Stoodly hardfacing, and crusher plates did not have to be replaced.

As fast as the finished material went to the surge bin, it was loaded out to six-yard dump trucks. One of these was loaded on an average of every 90 seconds while the plant was working. These trucks stockpiled the material at the site in readiness for subbase construction, so that when this work started, a 2½-yard tractor-loader merely had to take the gravel from the stockpile to the road.

THE END

◀For more facts, circle No. 228



As a flagman watches out for traffic on U. S. 83, just south of Fort Pierre, S. Dak., a Caterpillar DW21 scraper, left, pulls into position to load as the Euclid TS-18, center, climbs the steep grade on the return from the fill area. The two TS-18's, at right, load unassisted on the downhill grade.

Scrapers make deep cuts for highway relocation

Using two spreads of scrapers, a South Dakota contractor moved 750,000 cubic yards of dirt and shale in less than two months on a 4-mile re-

grading job on highway U. S. 83, just south of Fort Pierre, S. Dak. The project required a 56-foot-deep cut and a maximum fill of 36 feet, and also included 230,000 cubic yards of channel change excavation to relocate the Bad River.

Planned and supervised by the South Dakota State Highway Commission, the project eliminates a steep grade, a dangerous turn, and a low section of road which was subject to flooding. General contractor for the \$191,859.11 grading and base work was J. H. Beckman Construction Co., Inc., Sioux Falls, S. Dak.

Scrapers make channel change

To make room for the new location, a creek channel had to be relocated. Excavating this new channel and backfilling the old one were the first operations when the job got underway. Two scraper spreads—one consisting of four Euclid TS-18 twin-engine scrapers, and the other of three Caterpillar DW21's—were push-loaded by three International TD-24 tractors—were able to take the new channel excavation right down to water level. The scraper spreads hauled the excavated material into the roadway fills or used it to backfill the old channel.

The final 2-foot depth of excavation below water level was made by an American Model 399 dragline with a 1 1/4-yard bucket. The rig cast the material in a spoil bank beside the channel, and the scrapers later loaded it and moved it to the fill areas. The complete channel change required 230,000 cubic yards of excavation.

While the dragline was finishing the channel, the scrapers moved to the big cut at the edge of the valley. Here the new alignment crossed the existing highway which continued to carry heavy traffic throughout the duration of the job. The cut was made in the high bank on one side of the old road, and the scrapers crossed the road to the fill area in the valley. With seven of the big scrapers roaring back and forth across the busy highway, the flagmen were undoubtedly the busiest men on the job.

The powerful twin-powered Euclid TS-18 scrapers worked to good advantage in this situation where they could load on a fairly steep downhill grade. With the hard ground and shale scarified ahead of them, they were able to get heaping loads coming down the grade, without the aid of a push-tractor. Actually, the engines seemed to be working harder

(Continued on page 41)

"Armco MULTI-PLATE Pipe is easy to install"

So said Mr. Edward B. Copas, Construction Superintendent for D. R. Smalley & Sons, Inc., contractors of Celina, Ohio.

He was directing the assembly of five different Armco MULTI-PLATE® Structures used to solve a difficult drainage problem at a road overpass near Troy, Ohio. This part of the relocation of Route 25, in Ohio is under contract to D. R. Smalley & Sons, Inc. (Map shows details of the site.)

All design work and supervision of construction on the Route 25 project is handled by the Ohio Department of Highways.

* * * * *

Contractors all over the country are installing Armco MULTI-PLATE Pipe, Arch and Pipe-Arch on major expressways as well as secondary roads. Work goes quickly—no curing before backfilling. Wide range of sizes and gages.

Write for data on Armco MULTI-PLATE Structures, Armco Corrugated Metal Pipe, Armco FLEX-BEAM® Guardrail, Armco Pipe Piles and other products for highway construction. Armco Drainage & Metal Products, Inc., 4077 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

This photo shows three of the five Armco MULTI-PLATE Structures at the Eldean Road approach on Ohio's new Route 25. At left is triple line of pipe; at right is triple line of pipe-arch; and in background is double pipe-arch carrying drainage of the other four structures.



ARMCO MULTI-PLATE DRAINAGE STRUCTURES



For more facts, use Request Card at page 18 and circle No. 229



A Caterpillar DW21, push-loaded by an International TD-24 tractor, is on its way to the fill area. An Ateco ripper, rear-mounted on the TD-24 rips up the hard ground and shale.

(Continued from page 38)

getting the big machines back up the steep grade than they did on the loading cycle.

One of the International TD-24 push-tractors was equipped with a rear-mounted, hydraulically controlled Ateco ripper. One big tooth in the center of the ripper was used to scarify the shale so that the scrapers could load it.

The scrapers roared down from the loading area across the old highway and out onto the new fill, dumped their loads, and returned up the grade, all without stopping. The lifts of fill were spread by International TD-18 tractor-dozers and a Huber-Warco motor grader and a Caterpillar No. 12 motor grader. Chunks of shale were broken up by two Gebhard sheepsfoot rollers pulled by International TD-18 tractors. Water was applied by two International water trucks carrying 2,000 and 1,800-gallon tanks to bring the moisture content of the soil up to optimum. Compaction was done by the two big sheepsfoot rollers, plus the heavy scrapers and other equipment.

Base course

Material for the crushed gravel base course was produced in a pit, two miles from the job. A Pioneer two-unit portable crusher reduced the pit-run gravel to minus 1-inch size and loaded it into a fleet of the contractor's trucks which hauled to the finished grade.

The gravel base was dumped on the grade, watered, and mixed by a pair of Caterpillar No. 12 motor graders. Six-inch lifts were laid out by the graders and rolled by three Tampo 13-wheel rubber-tire rollers pulled by an International WD-6 and Ford tractors. The base course ranged in depth from 8 to 24 inches.

Personnel

Superintendent for J. H. Beckman Construction Co., Inc., was Richard Loger. Resident engineer for the Pierre district of the State Highway Commission was Marvin Lloyd. District engineer for the Commission is M. Von Wald. State highway engineer is H. C. Rempfer.

THE END



At the fill area a Huber-Warco motor grader, background, moves up to spread the fill dumped by the Euclid TS-18 scraper, left. A Gebhard sheepsfoot roller, pulled by an International TD-18 tractor, works on the leveled area to break up the chunks of shale.



WIRE ROPE AT WORK

Nello L. Teer, of Durham, N. C., has handled many tough contracts, but the one near Aliquippa, Pa., probably topped them all. This project called for the widening of Constitution Boulevard along the east bank of the Ohio River. Teer's contract, covering 2.51 miles, required some prodigious digging. An estimated 3,000,000 cu yd of rock and dirt was removed from the shale and sand-

stone cliffs that bordered the roadway.

While breaking the rock from the face of the cliffs, the Teer shovels frequently worked at close quarters on very narrow benches. Though it was rugged going, the schedule permitted no delays. To assure top performance of critical boom and hoist lines, Bethlehem wire rope was chosen for these assignments, and easily met every demand imposed upon it. Bethlehem rope is a natural for this kind of work, being so tough and strong that it takes the heaviest loads in stride.

Bethlehem Steel Company, Bethlehem, Pa. On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

Mill depots and distributors from coast to coast stock Bethlehem rope for the following industries and numerous others:

CONSTRUCTION • EXCAVATING • MINING • QUARRYING • PETROLEUM • LOGGING • MANUFACTURING



For more facts, use Request Card at page 18 and circle No. 231

Names in the news

Gerald H. Brown, newly elected vice president and construction manager of United Engineers & Constructors, Inc.



United Engineers names Brown vice president

Gerald H. Brown has been elected a vice president and construction

manager of United Engineers & Constructors, Inc., Philadelphia, Pa. In his new position, he will be immediately responsible for the continuing construction of two power generating stations at Linden and Bergen, N. J.

Brown has been manager of construction on major United Engineers' projects throughout the Eastern two-thirds of the country. Most recently he was in charge of construction on central power stations at St. Clair and River Rouge, Mich., for the Detroit Edison Co.

N. Y. engineering group honors Ole Singstad

The New York State Society of Professional Engineers presented Ole Singstad, international tunnel engi-

neer, with the annual award for distinguished engineering services at the society's meeting at the Hotel Statler, New York City, last month. Singstad is a pioneer and leader in tunnel design and construction.

He was chief engineer and designer of the Holland, Lincoln, Queens Midtown, and Brooklyn-Battery tunnels. Singstad was also the consulting engineer on vehicular tunnels in Oakland, Calif., Brazil, Cuba, Canada, and Belgium. He is the recipient of five honorary doctorates in engineering, and holds active membership in the New York State Society of Civil Engineers, American Institute of Mechanical Engineers, engineering societies of Norway, Norway Academy of Science, and is past president of the Am. Inst. of Consulting Engineers.

James Conforti, Jr., heads the John H. Eisele Co., New York City.



New president heads John H. Eisele firm

James Conforti, Jr., the former chief engineer and treasurer of the William L. Crow Construction Co., last month became president of the John H. Eisele Co., New York City.

An attorney-at-law and a professional engineer, Conforti learned building construction the hard way—by apprenticing himself to various basic building trades such as carpentering, masonry, and plastering. He was a vice president of the Union Construction Co., New York, prior to World War II, served in the Navy Seabees for four years, then joined the architectural firm of Voorhees, Walker, Smith & Smith after his discharge from service. He had been with the Crow firm since 1949.

John H. Eisele, founder of the 35-year-old firm, is now serving as chairman of the board of directors. John P. Nelson, vice president, will continue as office and project manager.

Corps has Col. Hansen as new district engineer

Col. Everett A. Hansen assumed his duties as district engineer of the U. S. Army Corps of Engineers' Galveston District about a month ago, replacing Col. W. P. McCrone, who has been assigned to the American Battle Monument Commission in Paris.

Col. Hansen was formerly engineer comptroller in the office of the Chief of Engineers in Washington. Commissioned in the Army Engineers in 1940, Col. Hansen served as engineer for construction troops in the Pacific Theater of operations during World War II. Later he served on the General Staff for the Department of the Army in Washington, as a resident member of the Beach Erosion Board, and as assistant district engineer with the Omaha District in Nebraska and in the North District in Iceland.

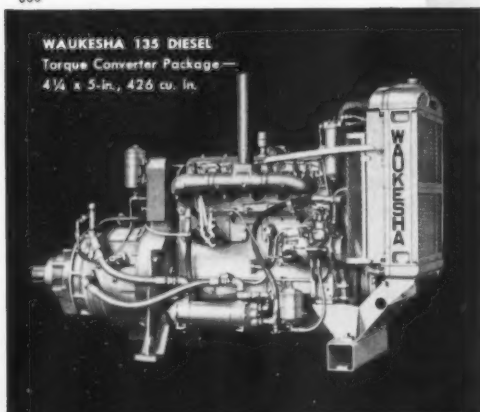
Col. Albert L. Reed has been made district engineer at Albuquerque, N. Mex., to replace Col. Robert E. Cron, Jr., who retired from active service. Col. Reed was formerly assigned to the Armed Forces special weapons project at Kansas City, Mo., where he was serving as Midwest engineer and construction officer.

Austin Co. promotes Saveland, Superak

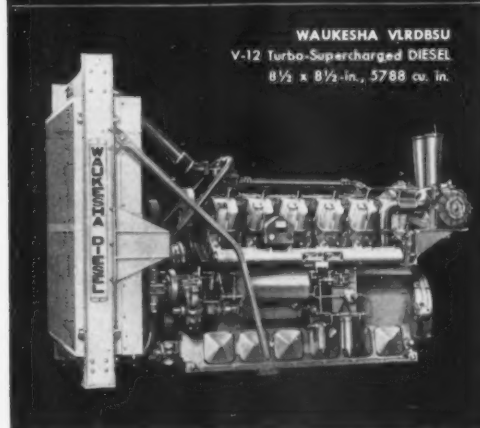
Brown W. Saveland has been appointed assistant district manager in the Pacific Northwest by the Austin Co., engineers and builders of Cleveland, Ohio. He will make his headquarters in Seattle, Wash.

Saveland has been with the company since 1941 and has served as

Profit-Paying WAUKESHA POWER FOR CRANES AND SHOVELS



WAUKESHA 135 DIESEL
Torque Converter Package—
4 1/4 x 5-in., 426 cu. in.



WAUKESHA V12RDSU
V-12 Turbo-Supercharged DIESEL
8 1/2 x 8 1/2-in., 5788 cu. in.



Complete size range to 1235 hp...all standard fuels.

WAUKESHA MOTOR COMPANY, WAUKESHA, WISCONSIN
New York • Tulsa • Los Angeles

For more facts, use Request Card at page 18 and circle No. 232

project engineer, as electrical engineer, and as supervising engineer on several multimillion-dollar projects for the Atomic Energy Commission at the Argonne National Laboratory at Lemont, Ill., and Rocky Flats near Denver, Colo.

Michael P. Superak has been named district engineer in northern California by the company. He has served as supervisory engineer and project engineer on a number of Austin projects including Boeing Aircraft Co.'s recently completed jet transport manufacturing facilities at Renton, Wash., and United Air Line's maintenance base at the San Francisco Airport.

N. C. highway department names division engineer

Frank L. Hutchison has been appointed division engineer of the 14th highway division of the North Carolina State Highway Commission, succeeding Cameron W. Lee who was promoted assistant director of highways. Hutchison will be responsible for the construction and maintenance of state highways and roads in ten mountainous counties.

A member of the highway department since 1935, Hutchison's most recent work has been as resident engineer on the heavy mountain grading and the construction of a 1,035-foot-long tunnel on the Pigeon River road; the grading and paving for the new 4-lane highway between Canton and Lake Junaluska; and the 2-lane grading and structures for a new location of U. S. 19-A and 23 from Balsam Gap to Willets.

Pa. highway department names six engineers

The Pennsylvania Department of Highways has appointed four men to engineering positions. John R. Flack is the new civil engineer in District 6, Haverford; and Allen C. Whetstone is the new civil engineer in District 9, Hollidaysburg. Soils engineer in the testing laboratory, Harrisburg, is William C. Bernstein, and John C. Hobson is highway design engineer in District 12, Uniontown.

John H. Comiskey, Jr., has been appointed traffic engineer for the Pennsylvania Department of Highways, succeeding Robert R. Coleman who is on a leave of absence for graduate study in traffic engineering at Yale University.

Comiskey served as department safety engineer. His assistant, John F. Huzvar, II, has been named acting safety engineer.

Vt. highway department promotes A. M. Knight

Arthur M. Knight has been appointed chief of administrative services for the Vermont Department of Highways. He will be responsible for directing all functions of the department, other than those relating directly to engineering work.

Since last July, Knight has been the department's office manager, a post now filled by Leslie W. Pierce.

Rust Engineering elects Over a vice president

Arthur M. Over has been elected a vice president of the Rust Engineering Co., Pittsburgh, Pa. Over joined Rust Engineering in 1946 as a field engineer, and was later made construction superintendent, assistant project manager, project manager, and director of purchases.

AICE presents Quarles with 1957 merit award

Donald A. Quarles, Deputy Secretary of Defense, has been presented with the Award of Merit by the American Institute of Consulting Engineers. Quarles, the sixth recipient of the award, was honored at the

institute's annual dinner at the Waldorf-Astoria Hotel, New York City, last month.

The Institute praised Quarles for his "outstanding example of how scientific training, broad technical experience, and conscientious endeavor can be combined successfully to meet the demands of enlightened government in a free economy."

Pomeroy & Co. elects three new directors

A. C. Jonsson, F. A. Divita, and D. G. Whittemore have been elected to the board of directors of J. H. Pomeroy & Co., Inc., San Francisco, Calif., contracting and engineering firm. Jonsson is vice president of foreign operations, Divita is vice presi-

dent of domestic operations, and Whittemore is secretary-treasurer.

Dr. John F. Brahtz, director of engineering, was elected vice president of the engineering division. He is in charge of the engineering division of the company at Los Angeles.

Baltimore Contractors elect Hume director

David Hume has been elected a director of Baltimore Contractors, Inc., Baltimore, Md. He is a member of the Washington law firm of Steptoe & Johnson.

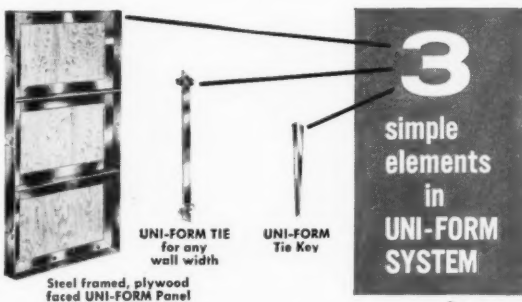
Baltimore Contractors is currently working on plants for the Jones & Laughlin Steel Corp. in Willimantic, Conn., and for Western Electric Co., Inc., in Arlington, Va.

reduce forming costs...

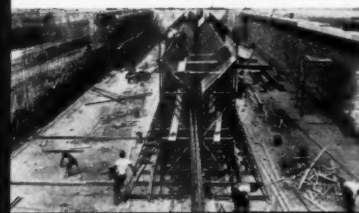
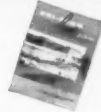
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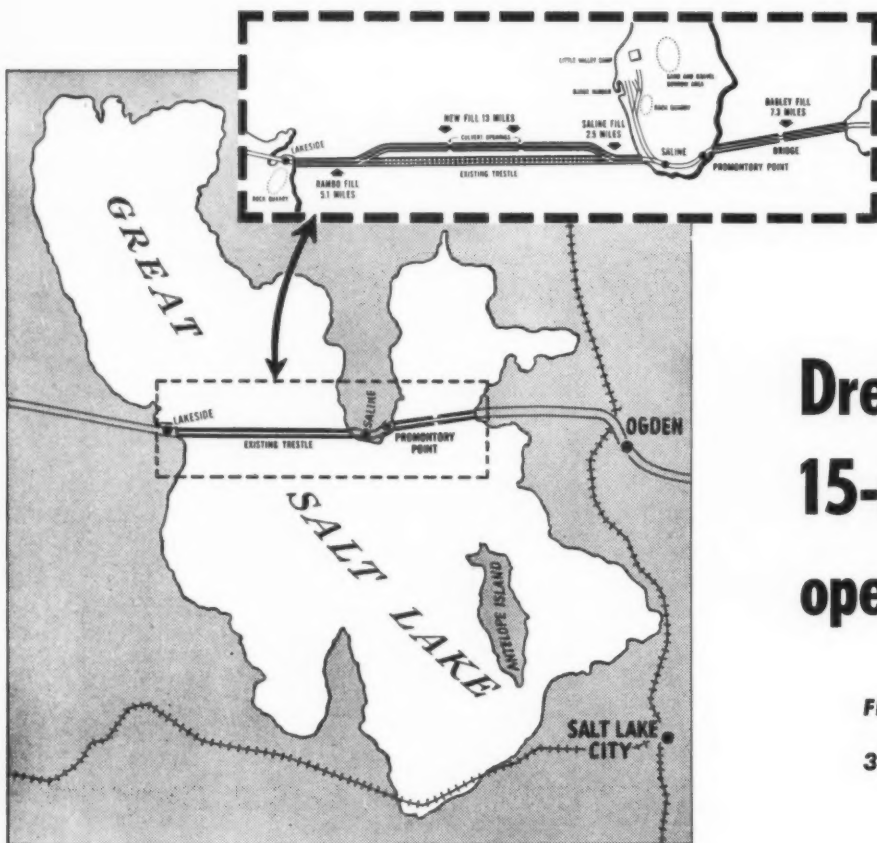
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For more facts, use Request Card at page 18 and circle No. 233



The 18-inch dredge Judah is the larger of the two dredges digging through the muck bottom of Great Salt Lake to gouge out a footing trench for the 13-mile-long gravel and rock fill for the Southern Pacific RR. A floating A-frame supports the 85-foot-long ladder.



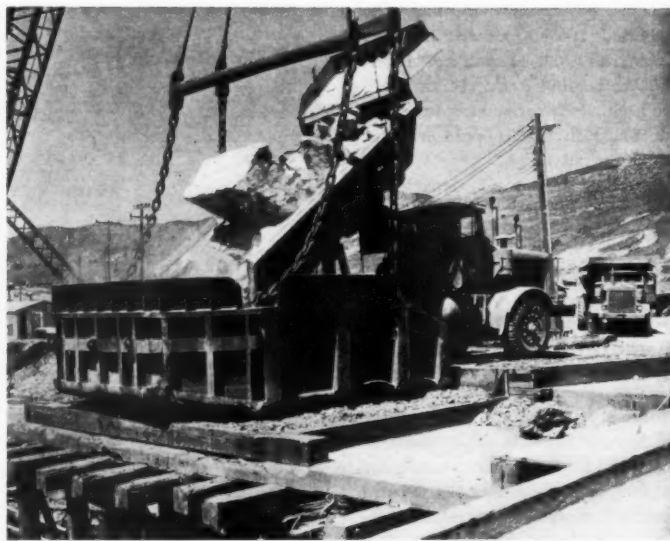
by RALPH MONSON
field editor

Dredges tackle 15-million-yard trenching operation for railroad fill

*Flat-top and 250 x 55-foot bottom-dump barges start
31-million-yard, 13-mile fill to carry Southern Pacific
tracks across Great Salt Lake*

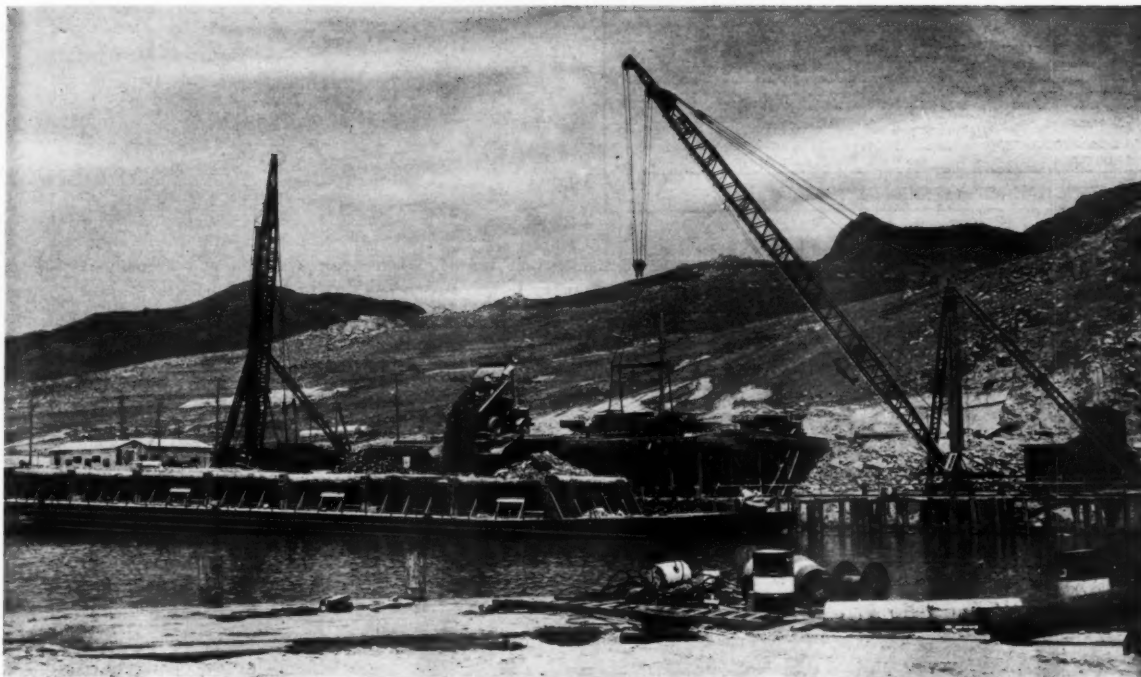


The 15-inch Hood, which digs 7 feet per swing, has an 89x32-foot hull. It is held in position by a "Christmas tree" arrangement, with one anchor astern and two on either side. The trench, with 1 to 1 side slopes, varies from 192 to 480 feet wide for 3½ miles at either end; the width is 150 feet in the center section.



Rock hauled from quarry to dockside by a Euclid end-dump is loaded into a 25-yard skip handled by a stiffleg derrick, to be transferred to one of the big bottom-dump barges. This rock goes over a 5-foot gravel blanket in the trench, forming a core which will be covered with gravel to within 10 feet of the water surface.

CONTRACTORS AND ENGINEERS



Two American stiffleg derricks team up to load a 250x55-foot bottom-dump barge at the dock. A Euclid is dumping directly to the barge from the cantilevered dock, while the stiffleg at right transfers a 25-yard skip to the barge. The other stiffleg waits for a skip to be filled.

After nearly a year of preparation, the dredging of 15 million cubic yards of soft muck to form a trench, and the filling of the trench with 31 million cubic yards of rock and gravel have been started for the 13-mile fill across the deep open waters of Great Salt Lake, Utah, for the tracks of the Southern Pacific railroad.

During that year, Morrison-Knudsen Co., Inc., general contractor for the \$49 million project, assembled a huge fleet of marine and land-based equipment, much of it specially designed for the project. One of the more spectacular items is a 2-mile conveyor system which brings gravel to dockside from an inland pit and loads the material into a fleet of huge bottom-dump barges.

When the big fill is ready to carry
(Continued on next page)

Weathermen call floating rigs to safety

With a big fleet of marine equipment operating out on the open waters of Great Salt Lake, and the extremely heavy water (salt content: 26 per cent) making high waves particularly dangerous, accurate weather information is important.

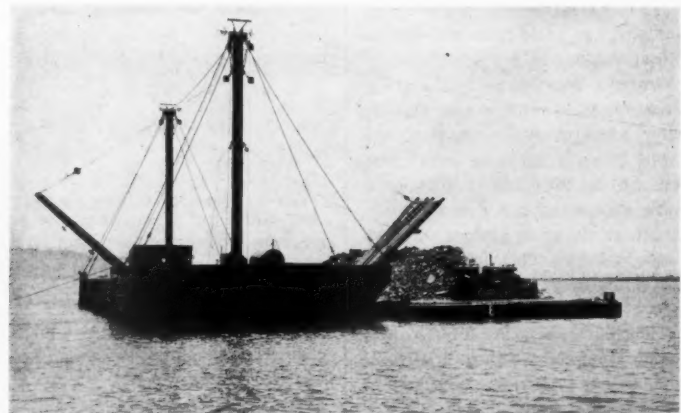
M-K has a private meteorological service, Intermountain Weather, Inc., Salt Lake City, to provide project supervisors with forecasts telling the expected direction and velocity of wind over the job area, the expected time winds will start and their duration, and the probable wave height on the lake.

This, plus automatic wind-recording instruments around the site, on each of the dredges, on the railroad trestle near the center of the lake, and at headquarters buildings on both sides of the lake, help M-K keep accurate weather records. Hourly readings are made on the instruments and reported back to forecasters for their information.

When high winds or dangerous waves are forecast, floating equipment is brought into the harbor until the wind subsides. Veteran pilots on the project are amazed at the effects of the "heavy water waves" on the lake, and some say that these waves have greater power and damaging effect than much higher waves on the ocean. Wind forecasts have usually proved accurate as to time and severity, enabling crews to get marine equipment into safe waters in advance of a number of dangerous blows.

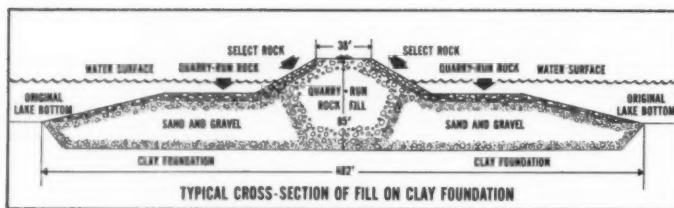


Some 3,200 tons of gravel is being dumped by one of the six big bottom-dump barges operating on the lake. The filling is controlled from survey towers, from which the line is established. A Gunderson Bros. tugboat guides the barge into place.



Rock dumping from the flat-top barges is controlled from a range barge. The Cat D8 tractor-dozers are pushing rock off the side of the barge while the range barge holds the location. The job done, the ramp on the range barge will be lowered to pick up the Cat and await the next flat-top. Towers carry the barge anchor lines.

The dumping operation complete, tug and barge head back for the dock. The tugboat has a high pilot house, enabling the pilot to see over the loads of material.



trains in 1960, it will replace a 12½-mile trestle now used by trains crossing the lake. Built in 1904, this trestle has served well but is in need of re-decking and eventual replacement. The new fill will provide a stable roadbed which will make it unnecessary for trains to slow down when crossing the lake. Since the old trestle is being used during the construction period, the fill is being built on a new alignment 1,500 feet north of and parallel to the trestle. Two long reverse curves join the new alignment and the existing rock fills at both ends.

Bottom is salt and clay

The bottom of Great Salt Lake is underlaid by clay and salt, and some of the salt layers are as hard as rock, go to good depths, and have bearing value. A few of the clay layers are fairly stiff and heavy, with fair bearing properties, but most of them are little more than soft muck.

For about 3½ miles out on each end of the new fill, where the bottom is clay covered by 20 to 25 feet of muck, trenches with 1 to 1 side slopes are being dredged down to clay to provide a base for the fill. The trenches have bottoms ranging from 192 to 480 feet in width, depending on the strength of the underlying clay.

In building up the roadbed fill, the contractor first lays a 5-foot blanket of gravel over the entire width of the trench. On this blanket, a quarry-run rock fill is built up in the center of the section immediately under the railroad grade. This rock fill is theoretically 44 feet wide at the bottom and from 91 to 104 feet wide at a point 10 feet below the water surface. Actually, the rock spills out over a wider section.

On both sides of the rock fill, the trench is filled with gravel. At the outer edges of the excavation, the gravel fill comes up to the level of the original lake bottom. From this point, it slopes upward to an elevation 10 feet below the water surface adjacent to the rock core. The surface of these gravel shoulders is protected with a 3-foot blanket of quarry-run rock.

The central rock core is built up to an elevation 15 feet above the water surface to provide a 38-foot-wide top for the ballast and rails. The sides of this part of the fill will be protected by a 5-foot-thick blanket of select rock ranging from 1 to 3 tons.

The extremely wide base and heavy gravel shoulders are designed to overcome the uplifting force when the underlying clay is subjected to the squeezing action of the heavy central core.

Fill on salt rock

In the center 5½-mile section, the fill is founded on a layer of salt rock

covered by 18 to 25 feet of soft muck. Here, the trench is being dredged to a width of 150 feet with 1 to 1 side slopes. In some cases, this trench goes down to as much as 60 feet below the water surface.

A test section of fill, of gravel instead of rock, is being observed in an attempt to obtain the most economical, and at the same time, safe and stable fill.

The design section now being constructed is similar to the section being built on clay. It consists of a 5-foot blanket of quarry-run rock in the bottom of the trench, followed by a rock core with gravel shoulders. The surface will also be protected by riprap.

Dredging operation

Two powerful dredges—a 15-inch

and an 18-inch—are pumping out the soft muck to excavate the footing trench. One was shipped in from Alaska and one from Long Beach, Calif., for this project. Disassembled on the West Coast, they were loaded on railroad cars, hauled over the mountains by rail, reassembled in a launching yard at the project site, and slid into the lake.

Their first big job was dredging a



A single drop of used oil from this truck indicates true condition of the vehicle's oil . . . and tells a lot about the engine's operation.



Daily oil checks assure maximum lubrication efficiency in this diesel locomotive.

Now—they're testing used oil in minutes

THE NEED for a fast, accurate and practical method for determining the condition of used oil has long been one of the more serious problems confronting fleet operators. It's obviously wasteful to discard still-good oil, but operating a vehicle with contaminated oil could lead to costly engine damage. This was an unsolvable condition which maintenance men had come to accept.

Since no two vehicles, even of the same make and model, are identical in performance or operation, maintenance men were compelled to compromise on oil change "averages" recommended by engine manufacturers. This procedure is uncertain and costly. Fortunately, this operating conflict has been resolved with the introduction of a simple but completely reliable oil check system . . . the Shell ADC Oilprint Analysis.

The ADC Analysis was primarily conceived to determine proper oil change intervals for individual engines. However, it goes much further. It is capable of actually reducing engine maintenance costs by disclosing certain mechanical defects before they have caused serious engine damage.

The test procedure is very simple . . . requires little

practice to perfect . . . and provides a reliable check of oil from merely two drops of used oil. In minutes, the degree of Alkalinity, Dispersancy and Contamination can be determined easily.

Here are several typical examples from various areas of the country. They show how fleet operators, employing both diesel and gasoline engines, have successfully and profitably applied the ADC program.

A Kansas City Freight Line

Operating a large fleet of trucks, one Kansas City freight line previously had drained and replaced oil every 3,000 miles. After adopting the ADC Oilprint Analysis, individual test charts showed that, in most cases, drainage would not be necessary at less than 6,000-mile intervals. Even at this doubled interval, engine life was not affected. Further proof was established when these engines were inspected at 87,000 miles and no appreciable wear was found on bearings, pistons, rings or valves.

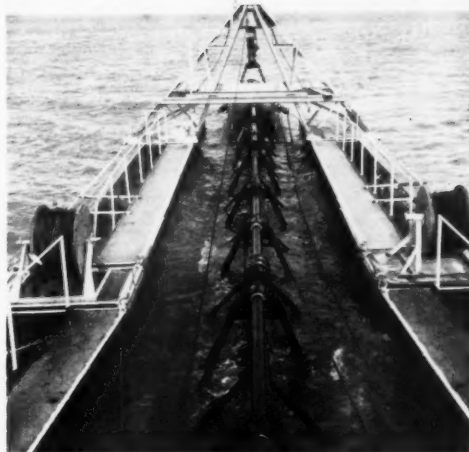
An Idaho Logging Operation

Oil had previously been drained after a limited number of hours of use on an Idaho company's diesel loco-



The Hood's basket cutter is driven by a 125-hp electric motor. The Timken sheave in the foreground carries one of the swing lines.

The 110-foot-long ladder of the Hood, supported on a floating A-frame that extends 100 feet ahead of the hull, is raised to the surface for inspection. Atop the ladder is the long shaft that turns the cutter; below is the 19-inch-ID suction pipe.



Substantial oil economy is realized in this tractor, because oil is changed only when indicated by the Oilprint.



Taking a quick "fingerprint" of crankcase oil from an interstate carrier.

tives. With the ADC Oilprint Analysis as a guide, the oil-change interval has now been safely increased many-fold. The savings made possible by this on-the-spot test in oil, filter change and labor costs were considerable. Furthermore, leaky head gaskets are frequently discovered before any serious engine trouble develops. Here is another valuable plus for the ADC Oilprint Analysis.

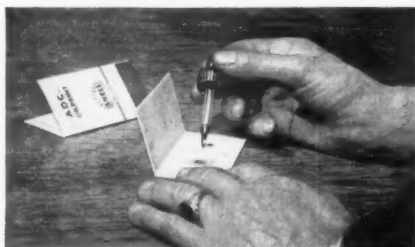
A Washington, D.C., Transit Company

This transit company operates a large fleet of buses with both gasoline and diesel engines in use. With the difference in operating schedules . . . rush hours, short and long hauls, around-the-clock schedules . . . both engine types were believed to require complete oil changes every 2,000 miles. When the ADC program was instituted, the tests showed that oil-drain periods and minor maintenance checks could be safely extended to every 3,000 miles for gasoline engines and 4,000 miles for diesel engines.

Fleet operators, who are concerned with extending the service of crankcase oil and avoiding the risk of using contaminated oil, are invited to sit in while a Shell service engineer demonstrates the time-and-money advantages of an ADC Oilprint Analysis program.



Photo shows an oil-spot test card . . . one phase in the visual life record of a change of oil.



One drop of a special indicator* fluid developed by Shell checks the alkaline reserve in the oil.

*Indicator Fluid U.S. Patent No. 2,770,530

boat harbor so that boats could move in to the loading docks to pick up gravel for the roadbed fill, then dredging a deep channel from the harbor out into the deep water of the lake. This complete, they tackled the task of moving 15 million cubic yards of muck from the footing trench.

The smaller, but newer, of the dredges is the Hood, which is equipped with practically every modern device and convenience. Excluding the hydraulic brakes on the swing winches, the controls are all electric. A Sperry gyro-compass guides the digging operation on both dredges, and a Sperry course recorder keeps an accurate record of each swing of the dredge, showing the width of the trench excavation.

The 89x32-foot hull of the Hood carries the operating machinery and the superstructure. The 110-foot-long ladder is supported on a floating A-frame which, with its connections, extends 100 feet ahead of the hull. The ladder carries the 19-inch-ID suction line and a basket-type cutter driven by a 125-hp electric motor. With this long ladder, the dredge can work to a depth of 85 feet below water surface.

The Hood's Amsco 15-inch dredge pump is powered by five 6-71 GM diesel engines. Four are in the conventional "quad" arrangement. The fifth, at a higher level, transmits its power to the reduction gear box through V-belts. The engines are geared down to turn the pump at about 420 rpm.

Two General Motors engine-generator sets provide electric power for such things as motors, controls, and lighting on the dredge. Each unit consists of a GM 110 engine and a General Electric 150-kw generator.

Instead of using spuds to hold its position, the Hood is equipped with a "Christmas tree" with three anchor lines running to 3½-ton anchors. One anchor is set astern, the other two are set to either side at 120 degrees to the course. The three are handled by three separate electric-powered hoists. The "Christmas tree" anchorage provides a very stable and precise hub on which the dredge can swing. This arrangement also permits faster moves back and forth over the range of the anchor cables than would be

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(Continued from preceding page)



Everything but the hydraulic brakes on the swing winches is electrically operated on the Hood. In the control room is a Sperry gyro-compass and course recorder which measures the digging swing. The three dials in front of the dredge leverman J. L. Faile indicate the relative position of the three anchor lines.

possible with the conventional spud arrangement.

The ladder hoist and swing lines are handled by an American three-drum hoist powered by a 75-hp electric motor. In the material encountered on this project, the dredge, digging a depth of about 7 feet per swing, made three swings for the average 20-foot cut down to the salt or clay. Since the Hood has a longer ladder than the other dredge, it was sometimes used to clean up the bottom, especially where the trench became excessively deep.

Among some of the pieces of auxiliary equipment on the dredge were an automatic wind gage with dials showing continuous readings of wind

direction and velocity. A Sabins-Dohrmann Co. Cathanode System protects the dredge against corrosion in the extremely salty water of the lake. Two-way Motorola radio keeps the dredges in touch with the project headquarters and other floating equipment.

The dredged material is discharged through 1,000 feet of 15-inch floating discharge line fitted with Mobile and PCE flexible joints. Two small floats, each equipped with a Skagit 3-drum winch, handle the discharge line. A larger anchor barge equipped with a Skagit three-drum winch sets and pulls the anchors.

The second dredge, the Judah, while similar to the Hood is older and more powerful. The floating A-frame carries an 85-foot ladder which supports the 21-inch suction line and a 4-foot basket cutter. The cutter is turned at 32 rpm by an Allis-Chalmers 100-hp motor.

The Morris 18-inch dredge pump is turned at 360 rpm by four General Motors 6-110 engines arranged as two sets of twins. The four engines develop 900 horsepower.

A single-drum hoist handles the ladder hoist, a two-drum hoist controls the swing lines, and a three-drum hoist operates the anchor lines of the "Christmas tree" anchorage system. All of the hoists are powered by separate electric motors. Two General Motors 100-kw generator sets powered by 6-71 engines provide all of the electric power for the dredge.

The Judah usually cuts about five feet to a swing, making five swings to excavate to a depth of approximately 25 feet. The excavated material is discharged to the side of the trench through 1,000 feet of 18-inch floating discharge line fitted with Mobile ball-and-socket joints.

On a typical day of digging in the deep-water area, the Judah removed 28,000 cubic yards of the soft fine clay from the footing trench.

Fill follows closely

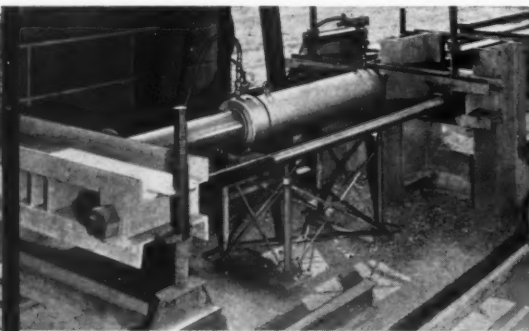
As the dredges move ahead, engineers check the cross section of the channel using an electronic Raytheon fathometer to be sure that the required excavation is complete. As each gravel and rock barge comes into the dump area, an engineer-pilot is put aboard from the sounding boat, and he directs the dumping operations. Underwater sections are checked and rechecked continually to assure results in conformity with the planned sections.

The six huge bottom-dump barges which bring the rock and gravel from the harbor to the fill are probably the largest barges of their kind ever built. Each is 250 feet long and 55 feet wide and has a capacity of 2,000 cubic yards or 3,200 tons of material payload.

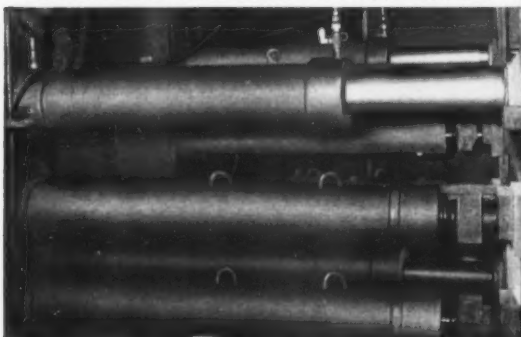
Each floating giant is pushed by a Gunderson Bros. tugboat equipped with two Enterprise 500-hp engines. Two Gunderson 600-hp tugs handle smaller barges, and three smaller tugs, powered by GM 6-110 engines, are used to speed up movements at



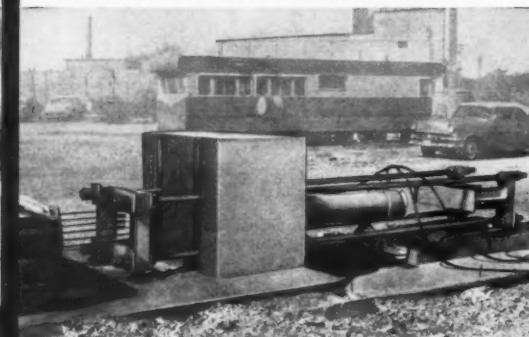
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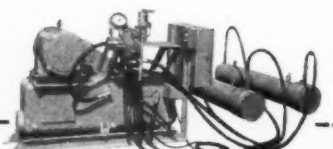
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Supermarkets, air service turn Utah construction village into big little city

On the west shore of Promontory Point, near the east end of the big railroad fill, Morrison-Knudsen has built a complete temporary village named Little Valley to house the workmen and their families. There are five air-conditioned double barracks and a large mess hall for single workmen. A trailer village provides living quarters for the families. An average of about 575 workmen are employed on the project and, together with their families, they make up a community of about 1,000 people.

The town includes a supermarket, barber shop, recreation facilities, and an infirmary. A nurse is on duty at all times, and doctors and dentists make regular trips to the camp.

Although it is a 90-mile trip over second-class roads to Ogden, the nearest sizable city, the site is not as remote as it first seems. Kemp & Kelsey Air Service of Salt Lake City has three scheduled flights to and from Salt Lake City each day. There are also two scheduled flights from Ogden daily, and a local train makes the half-hour trip to and from Ogden each day.

the loading docks and dumping areas.

In addition to the bottom-dump barges, M-K has four 48x170-foot flat-top barges for hauling rock and gravel. A range barge, the Sacramento, controls the dumping of the flat-top barges. The Sacramento, measuring 48x170 feet, is fitted with two 50-foot-high towers which carry the mooring lines controlling the positioning of the barge. A four-drum diesel-powered hoist handles these anchor lines.

As one of the loaded flat-tops is brought up alongside the Sacramento, a ramp is lowered to permit a Caterpillar D8 tractor-dozzer to get from the Sacramento to the deck of the barge. As the Sacramento controls the position of the barge, the tractor-dozzer pushes the rock over the side and onto the fill. By this method, the protective riprap can be accurately placed and the central rock core built up above water level.

While thousands of cubic yards of material have been excavated from the footing trench, and thousands of yards of fill have been placed, there is little evidence above the water to indicate what has been accomplished.

A look at the job records tells the story. Daily placements of 75,000 to 80,000 cubic yards of gravel and rock are common. In one 7-day period, marine records show 334,000 cubic yards of material placed. The 15-million-yard dredging job and the 31-million-yard rock and gravel fill

add up to some astronomical figures, but if M-K keeps the placement rates at current figures, it will meet the 1960 completion date.

Personnel

Managing the project for Morrison-Knudsen Co., Inc., during the first year of operation was project manager O'Dean Anderson. In June, Guy Reid took over. Others on the supervisory staff are general superintendent Harry Harding, assistant to the project manager William A. Stewart, Jr., general superintendents Clyde Thomas and W. W. Hamilton, office manager R. K. Woodhead, marine superintendent Frank Currey, project engineer Denny Bagley, superintendent at Lakeside, Francis McNally, and job safety engineer Carl Wiuff.

Engineering of the project was done by International Engineering Co., Inc., San Francisco. Norman H. Rands is resident engineer on the job for International Engineering, and Howard Willard is resident engineer for the Southern Pacific Co. Engineering and construction of the entire project is under the general supervision of W. M. Jaekle, chief engineer, Southern Pacific Co.

THE END

Career satisfactions topic of engineering report

A survey report, "Career Satisfactions of Professional Engineers in Industry", is the latest in a series of research reports made under the sponsorship of the Professional Engineers' Conference Board for Industry,

in cooperation with the National Society of Professional Engineers. The report is based on data gathered from interviews with several hundred professional engineers employed by 11 companies, each among the 200 largest corporations in the United States.

The report discusses the engineers in the survey, career outlook of professional engineers, satisfaction and frustration on the job, and the values of a successful engineer. Tables point out the statistical findings of the report.

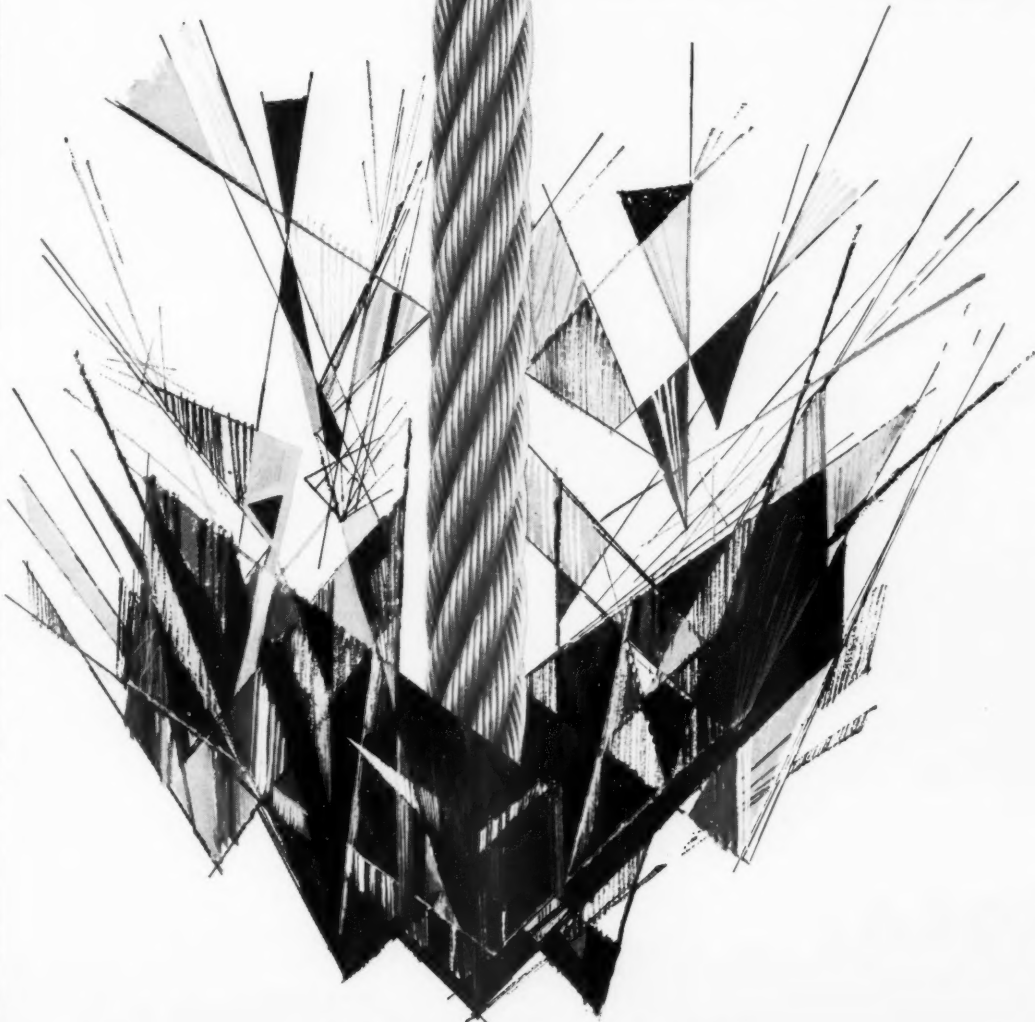
The report may be purchased from the Professional Engineers' Conference Board for Industry, 2029 K St. N. W., Washington 6, D. C. The report is priced at \$3 to non-members and \$1.50 to members of the National Society of Professional Engineers.

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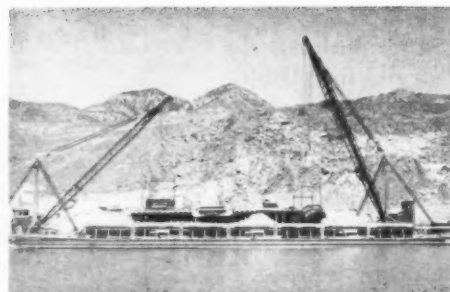
For more facts, use Request Card at page 18 and circle No. 236



Rock is loaded into a Euclid end-dump by a Bucyrus-Erie 150-B electric shovel with three scoops of its Esco 6½-yard bucket.



Secondary drilling and blasting are handled by a Gardner-Denver Air-Trac drill. A Gardner-Denver 600-cfm compressor supplies air for this operation.



Hauling to dockside, Euclids dump either directly into the big bottom-dump barges or to 25-yard skips, handled by American stiffleg derricks.

Huge land operation delivers rock, gravel for

More conspicuous and more publicized than the marine operations for the 13-mile railroad fill across Great Salt Lake are the land-based operations of Morrison-Knudsen, Inc.

In a valley near Promontory Point, a mile or more inland from the docks, is the gravel deposit supplying material for part of the 3-million-cubic-yard fill; a rock mountain at the southwest end of Promontory Point is being blasted to pieces and transported out into the lake to build the

rock portion of the roadbed. Essentially, the fill consists of a 5-foot blanket of gravel in the footing trench, and a quarry-run rock fill, reaching up above the surface. This core will have gravel, covered with a blanket of quarry-run rock, on both sides.

Two-mile gravel conveyor

At the gravel deposit, three Bucyrus-Erie 150-B electric shovels with Esco 8-yard buckets are scooping up

the pit-run sand and gravel and loading it into a fleet of 11 Euclid bottom-dumps. These 25-yard "Eucs" are sideboarded to give them a greater capacity.

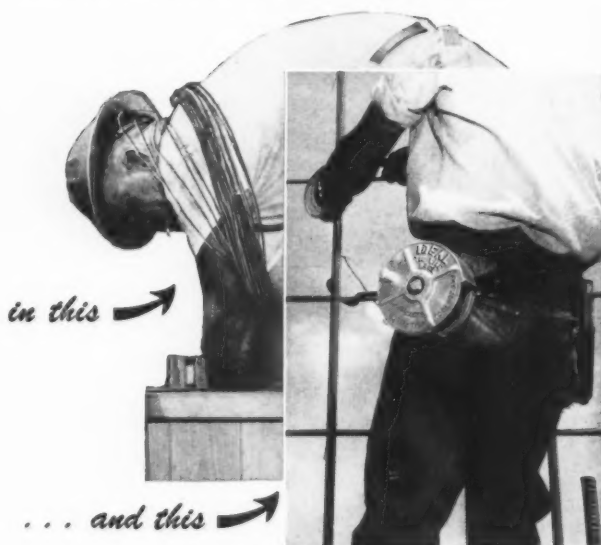
Once loaded, the Euclids drive over double dumping bridges to discharge their loads into a pair of 60-cubic-yard surge bins. At the bottom of each bin, an Oro-Manganese 60-inch×13-foot pan feeder delivers a uniform flow of gravel to a single-deck, 6×14-foot scalping screen. The openings of

the scalper pass all minus 8-inch material directly to an accelerating conveyor.

The oversize is carried over into a Pioneer 36×42-inch jaw crusher, and crushed material is fed by gravity to a conveyor. The entire conveyor system was designed and furnished by Hewitt-Robins.

The main 54-inch conveyors carry the gravel from the loading setup to a stacker at the dock some two miles away. Since these main conveyors

Discover the profit difference



GET RID of OBSOLETE WIRE TYING METHODS

Right on your own jobsite you can test the difference in Ideal tie wire reel with whatever wire tying method you're now using. You'll discover it gives 6 to 8 more ties per man every minute your employees spend tying wire. You'll see how and why it pays for itself quickly—plus many times over, on job after job.

You'll also prove that Ideal reel's smooth, rapid dispensing of wire and easy to re-fill wire coils makes every pound of wire give you 33% more ties, on average—and eliminates wire waste. You'll learn how it increases employee efficiency, comfort and safety. Possessing unique patented design, Ideal reel gives versatile Right or Left hand use and provides other time saving benefits no other wire dispenser can match.

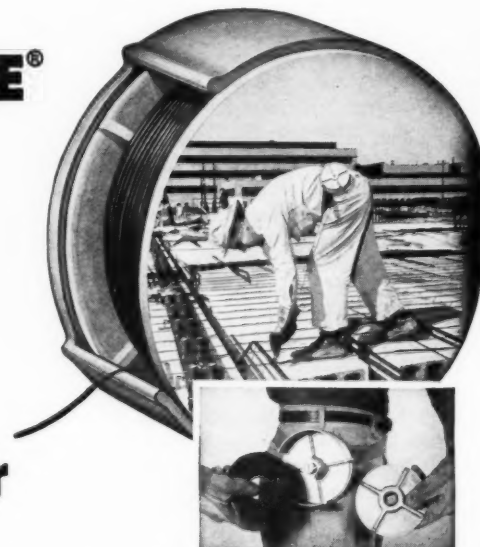
Start Saving With IDEAL REEL On Your Job Now!

IDEAL
tie wire reel

Ask your nearest dealer for an on-the-job demonstration, or write us direct. No obligation, of course.
Ideal Reel Company
PADUCAH, KENTUCKY

For more facts, use Request Card at page 18 and circle No. 237

CAL-TIE® WIRE in the handy reel dispenser



safe to use...

Cal-Tie Wire in the handy reel dispenser makes concrete reinforcement tying jobs safer because there's no old-fashioned shoulder coil to throw workers off balance... no awkward coil to catch on protruding objects... no danger of eye injuries... no scratches on neck or ears to become infected... and Cal-Tie Wire has a smooth, even surface.

Contact your nearby CF&I representative today for the complete story on this safe, easy and modern way of tying concrete reinforcement bars.

easy to use...

Workers prefer to work with Cal-Tie Wire in the handy reel dispenser. They like the safety... its compactness and lightness... the way it doesn't cramp them when they're working in tight places... the way it eliminates tiresome treks to get a new coil to replace the partially-used one they had to abandon to do other work.

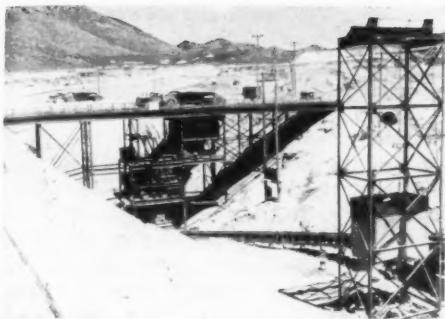


CAL-TIE WIRE
THE COLORADO FUEL AND IRON CORPORATION

THE COLORADO FUEL AND IRON CORPORATION—Albuquerque • Amarillo • Billings • Boise • Butte • Casper • Denver • El Paso • Ft. Worth • Houston • Kansas City • Lincoln (Nebr.) • Oklahoma City • Phoenix • Pueblo • Salt Lake City • Wichita
PACIFIC COAST DIVISION—Los Angeles • Oakland • Portland • San Francisco • Seattle • Spokane
WICKWIRE SPENCER STEEL DIVISION—Atlanta • Boston • Buffalo • Chicago • Detroit • New Orleans • New York • Philadelphia
CF&I OFFICE IN CANADA: Toronto • CANADIAN REPRESENTATIVES AT: Calgary • Edmonton • Vancouver • Winnipeg

For more facts, use Request Card at page 18 and circle No. 238

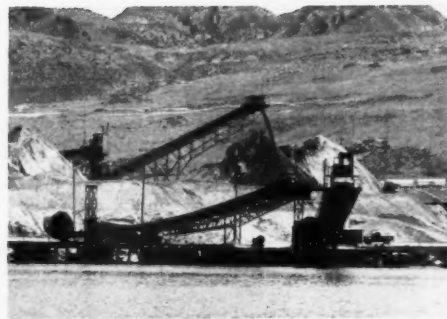
CONTRACTORS AND ENGINEERS



Gravel is dumped to a surge bin below the open-deck bridge near the pit. The tower at right carries weights controlling the tension on a long section of the conveyor system.



Gravel speeds toward the loading dock at the lake shore on this Hewitt-Robins conveyor system, which runs from the inland pit. The 54-inch conveyors travel at a rate up to 850 fpm.



Arriving at the lake from the pit, gravel is picked up and stockpiled to a height of 70 feet by a 164-foot radial stacking conveyor. Feeder conveyors run to the reclaiming tunnel conveyors.

Gravel for Great Salt Lake roadbed

travel at speeds up to 850 fpm, the loading setup and transfer points are equipped with accelerating conveyors to ease the change in speed and direction.

The conveyors are driven by electric motors, which also act as breaking units by regenerating current and feeding back into the line. Since much of the conveyor grade is downhill, it is expected that the braking action will generate at least enough power to operate the system.

At the dock, the material is picked up by a 164-foot radial stacking conveyor which can build a stockpile 70 feet high. Under this stockpile are two Armco Multi-Plate elliptical-arch reclaiming tunnels, each housing a 500-foot-long, 72-inch dock conveyor. Each conveyor is fed by five feeder conveyors, any three of which can be used at a time. Each feeds 2,000 tons per hour—for a total of 6,000 tons per hour—onto each of the 72-inch belts. With both belts running, a 3,200-ton

Two-mile conveyor system carries gravel from pit to barges at dockside; rigs haul rock from three quarries for center and ends of 13-mile fill

barge can be loaded in just over 15 minutes.

This equipment will excavate, move, and place more than 19 million cubic yards of gravel before the job is completed some three years from now.

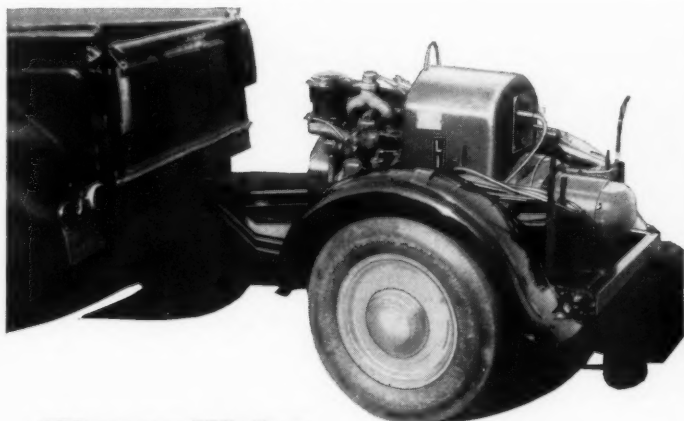
Rock handling

The most dramatic phase of the rock production job came with a shock at 10:30 a. m., July 21, when the biggest non-atomic explosion ever set off in this country tore into a moun-

tain to produce over 1½ million cubic yards of rock.

Almost 1½ million pounds of explosives were detonated in a single blast to loosen this tonnage. To load this tremendous blast, and three other 1-million-pound shots that preceded it, the M-K crews tunneled two parallel 5×7-foot adits 1,500 feet apart, deep into the mountain. At right angles to these adits, they mined 700-foot-long coyote holes approximately

(Continued on next page)

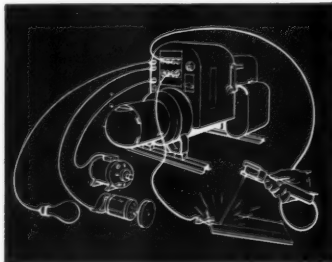


There'll be no lost time on this job

This contractor takes his own power with him. Whether he needs electricity for lights, power tools, pumps, or to weld a broken piece of equipment, Weldonpower will furnish the electric power he needs—when he needs it.

WELDONPOWER

Gasoline engine-driven 5000 watt, 115/230 volt power generator and 200 amp. welder combined. Powers lights, tools, motors, heaters and other electrical equipment and welds, simultaneously if necessary! Write for Bulletin SB-1339 for full details.



THE LINCOLN ELECTRIC COMPANY
Dept. 5318 • Cleveland 17, Ohio
The World's Largest Manufacturer of Arc Welding Equipment

For more facts, use Request Card at page 18 and circle No. 239

NOVEMBER, 1957



Clayton SUMMERAIRE Keeps Cold-weather Jobs Moving

UP TO 375,000 BTU'S

QUICK-THAW MATERIALS and EQUIPMENT

Quicker starting of heavy equipment in freezing weather is only one chore for Summeraire. Thawing of aggregates and materials, heating semi-enclosed work areas and protecting concrete against freezing while curing—these and many other applications make Summeraire the tool that keeps cold weather jobs moving.

SAFE, ODORLESS HEAT AT LOW COST

The Clayton SUMMERAIRE portable space heater is made in two sizes (four models). Series "300" models are available with electric or gasoline engine drive; with or without thermostatic flame control to maintain pre-set temperatures. Series "120" units provide a highly efficient medium-capacity heater. All have outstanding safety features: enclosed, baffled combustion chambers to eliminate open flame hazards; automatic fuel shut-off in the event of flame or power failure; odorless operation with no carbon monoxide release. Ask for prices and complete details.

SERIES "300" MODEL
Capacity: 320,000 to 375,000 BTU's per hr. Fuel tank capacity, 25 gals.; sufficient for 10 hrs. continuous operation.

SERIES "120" MODEL
Output: 120,000 BTU's per hr.; 950 cu. ft. heated air per minute. Burns less than 1 gal. low cost fuel per hr.



CLAYTON MANUFACTURING CO. C&E 11-7
Box 550, El Monte, Calif.

[] Send complete Summeraire literature.
[] Name of nearest dealer who will demonstrate.

NAME _____

ADDRESS _____

CITY _____ STATE _____

For more facts, use coupon, or Request Card at page 18 and circle No. 240

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The two Hewitt-Robins conveyors, each one capable of handling 6,000 tons of gravel per hour, pour material into one of the waiting barges.

(Continued from preceding page)

100 feet apart.

The coyote holes were loaded with ammonium nitrate and Atlas 60 per cent dynamite to within 125 feet of each header. The remaining 125 feet at each end was then blown full of fine sand. As the three preliminary explosions were detonated, geologists throughout the western part of the nation recorded the shocks on their seismographs. Incidentally, they used the explosion to seek more information about the nature of the earth's crust.

After each shot, the rock was loaded from two or more benches to a fleet of 15 Euclid end-dumps by two Bucyrus-Erie 150-B electric shovels with Esco 6½-yard buckets. The "Eucs" hauled from the main quarry to the docks, where the rock was loaded onto the barges.

To load the flat-top barges used on the project, the Euclids dump the rock into a steel-lined chute leading to the deck of the barge. As the load piles up, the barge is winched along the dock until it is completely filled with a load of about 1,000 cubic yards.

The loading dock provides space for three Euclids to end-dump simultaneously when one of the big 250×55-foot bottom-dump barges is being loaded. Two of the Euclids back to heavy-duty 25-yard skips handled by two American 30-ton stiffleg derricks on either side of the dock. The derricks pick full skips off the dock and dump them to a barge.

At the same time, the third Euclid uses the cantilevered center section of the dock to dump its load directly to the barge. Initial loading of rock is usually handled by the derricks so that barge doors will not be damaged by rock dumped from the high dock. The skips also provide for greater flexibility in getting the barges completely filled.

Work other quarries

Rock is also being obtained from two other quarries, one on Promontory Point, the other on the west shore of the lake at the opposite end of the fill. Euclids haul rock from the second Promontory Point quarry directly to the fill, over a haul road built beside the original railroad fill which loads out to the trestle. Euclids traveling this road are building up the above-water portion of the embankment. As the rock is dumped, it is spread by dozers, which work the larger rock to the outside of the fill

to serve as select riprap that protects the fill from wave action.

Blasted rock from the third quarry on the west shore of the lake is going into the opposite end of the fill. A Bucyrus-Erie Model 88-B shovels loads into a line of Western air-operated dump cars. These are hauled out to the fill for dumping by a Southern Pacific work train operating two 12-hour shifts. The gravel portion of the fill is brought in by barge from the loading docks at Promontory Point.

Maintenance and lubrication

The millions of dollars' worth of equipment on this project require an elaborate shop and field service setup

for maintenance and lubrication. The main machine and repair shop is equipped with machine tools for making or repairing anything on the job. Most of the portable equipment—such as Euclids, Caterpillar tractors, and trucks—is repaired in this shop.

There are three welding shops, one adjacent to the main repair shop and two in the marine area. One of the latter handles all welding for the dredge operations; the other takes care of maintenance of the tugs, barges, personnel boats, and other craft. There is also a separate marine repair shop for the repair and overhaul of the marine engines and other marine equipment.

here's the **NEW HD-21...** **DESIGNED AND BUILT TO FIT**

Now . . . major advances make the Allis-Chalmers HD-21 more productive than ever . . . capable of handling big-tractor jobs of every kind with the efficiency and dependability all contractors want and need.

New 225-net-hp turbo-engine

New weight—45,500 lb (bare)

New power train and torque converter effectiveness, simplicity

New longer track for matched traction, flotation

New operating ease and control with work-saving decelerator

New heavy-duty matched dozers

Here's a big tractor you can depend on to help you bid with confidence in your cost estimates. Your Allis-Chalmers dealer will be glad to talk to you about the new "21" . . . and to prove its value in a working demonstration on your job. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.

ALLIS-CHALMERS

Engineering in Action

Electric maintenance is handled from a separate shop. One shop is leased to Goodyear Tire & Rubber Co., which handles all tire maintenance under a contract arrangement. The painting of equipment is done in a separate shop equipped with an explosion-proof spray booth. These and many other shops and offices on the job are housed in Butler metal buildings of various sizes.

The daily lubrication of the 13 Caterpillar D8 tractors, 26 end and bottom-dump Euclids, a Euclid 5,000-gallon water wagon, and other miscellaneous mobile equipment is handled by a single grease rig which operates on a three-shift, 24-hour day.

During the day, the rig is manned by four men; one man handles the night shift.

The lube rig, carried on a Chevrolet 6500 truck, has eleven Lincoln hose reels carrying six different types of oils, plus grease, air, water, and solvent. A Curtis compressor supplies air, and a Kohler generator provides light for night operation. Standard Oil lubricants are used.

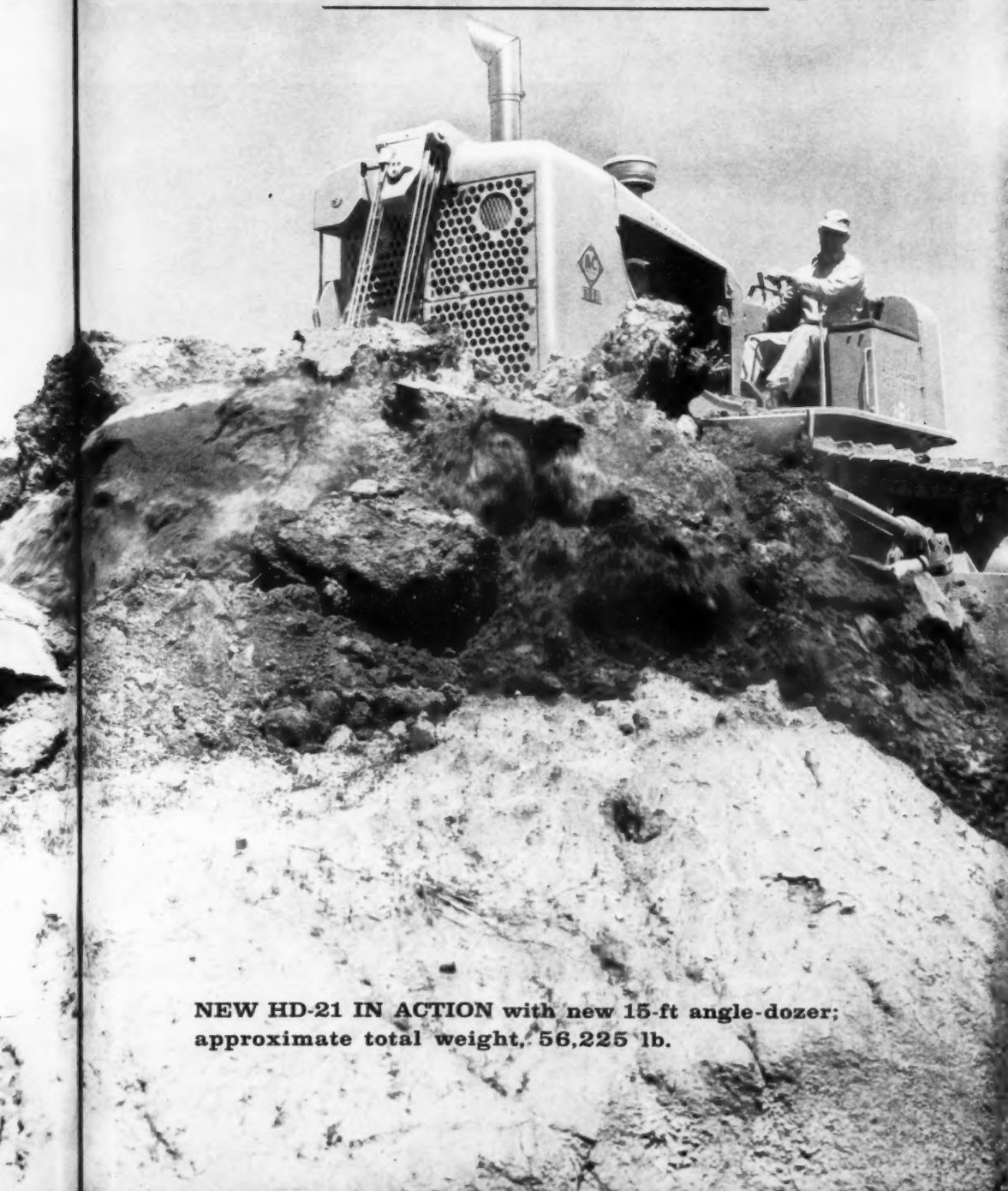
The four-man day crews take advantage of every minute of downtime, including lunch hours, to lubricate as much equipment as possible. Other rigs are pulled out of service for once-a-day servicing.

THE END



A Cat No. 12 motor grader gets its daily servicing by a crew with a Chevrolet lube truck. Eleven Lincoln hose reels carry six types of oils, together with air, water, grease, and solvent.

FITODAY'S BIG-TRACTOR JOBS!



NEW HD-21 IN ACTION with new 15-ft angle-dozer; approximate total weight, 56,225 lb.

Dragline does three jobs on construction of dam

Earthmoving and concrete work are currently under way on Ice Harbor Dam, near Pasco, Wash., the first of four authorized dams for the U. S. Army Corps of Engineers to be built on the Lower Snake River. Chief among the equipment on the job is a Manitowoc Model 4500, which has



A Manitowoc Model 4500 crane gets ready to swing a 4-yard bucket of concrete for a foundation pour on the Ice Harbor Dam, near Pasco, Wash. This structure is one of the four dams being built on the Lower Snake River for the U. S. Army Corps of Engineers.

been used for digging, lifting steel, and pouring concrete.

While excavating the site for the powerhouse, the dragline, equipped with a 7½-yard bucket, moved 30,000 yards of material. The excavation was 20 feet deep and took 20 days to complete with two shifts operating each day. The dragline's next job was erecting the concrete batching plant. For this job it was converted to a crane and used to set the mixer in place, erect the cement silo, and set up the conveyor for the batch plant. It took about 20 shifts to erect the plant's four 4-yard mixers, which will mix all of the concrete going into the powerhouse and portions of the spillway and non-overflow dams—a total of 580,000 yards of concrete.

At present, the Manitowoc is working two shifts, setting forms during the first and pouring concrete during the second. The rig lifts the forms into place and holds them while they are secured by carpenters.

←For more facts, circle No. 241

Specialized weather forecasts guide winter operations on Ohio roadways

Never one to trust the good nature of the weatherman, the Ohio Department of Highways is again getting ready for its snow and ice-removal campaign. The department's Bureau of Maintenance has been making a mass inspection of snow and ice equipment in each of Ohio's 88 counties. Each of the state's 1,200 pieces of equipment will be tested for satisfactory operation and safety.

In addition to the 1,200 pieces of equipment which will be used this winter, the department will erect approximately a million feet of snow fence. It will also use 125,000 tons of chemicals and 185,000 tons of abrasives. The department will stockpile chemicals, sand, and cinders in all divisions; and cinder boxes or drums will be placed along the highways for motorists.

Division power

Keeping the roads open and safe at all times, particularly in the snow belt area of northeastern Ohio, is the chief winter job of the highway divisions. The highway department is divided into 12 divisions, with a division engineer and maintenance engineer in charge of each division. Each division is composed of seven counties, on the average, with a superintendent in charge. Each county is equipped to send manpower, snowplows, and trucks laden with chemicals and abrasives to a storm-struck area in the county.

But the results of a division springing into action largely depend on accurate, specialized weather forecasts.

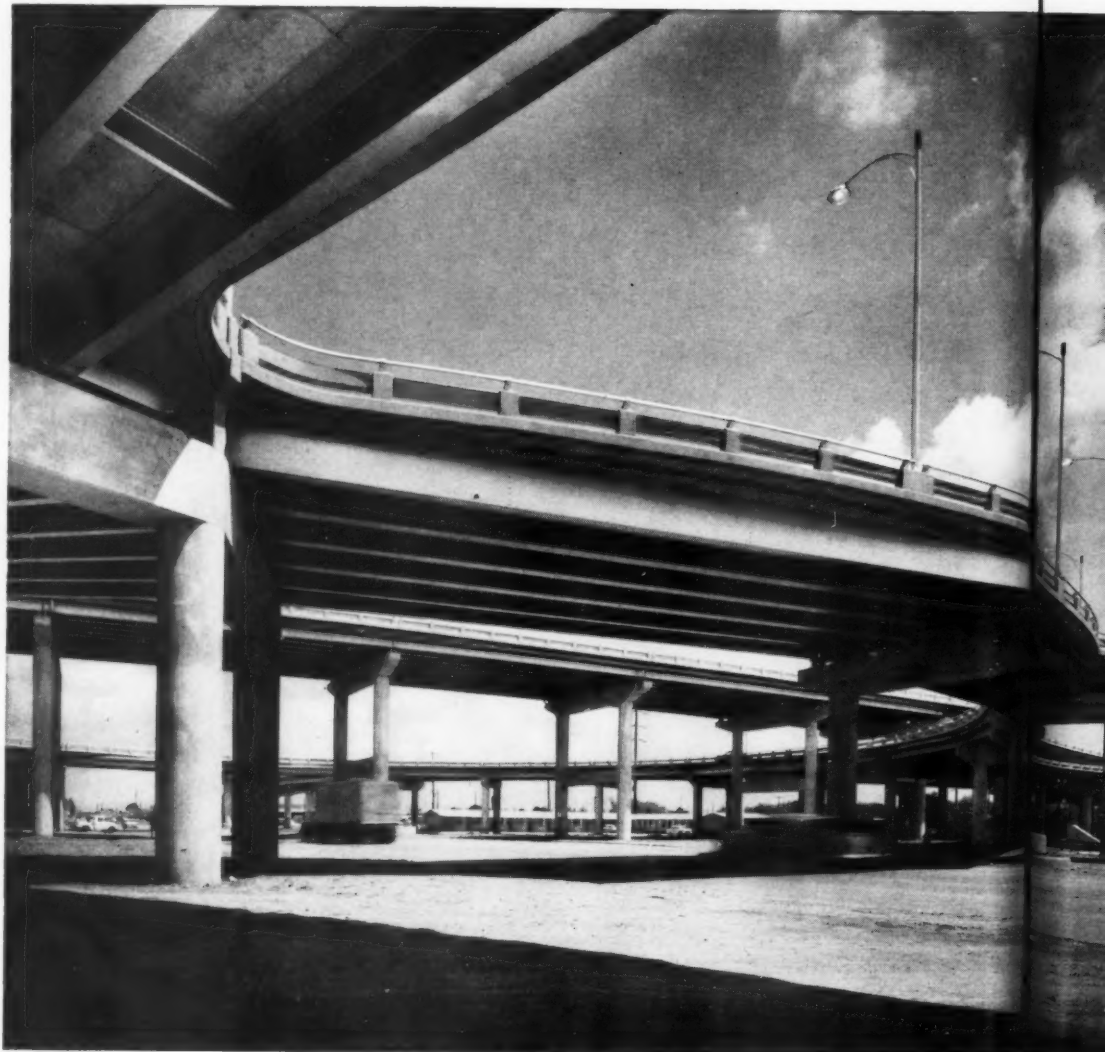
A few years ago, the department retained a private weather service—Weather Corp. of America, St. Louis, Mo., and New York, N. Y.—to provide the highway department with specific weather information. This includes a forecast of what type of storm will occur, when and where it is expected to hit, how it may change later in the day, how long it will last, what possibility of freezing there may be, and expected temperatures, wind direction, and velocity throughout the storm. Once the weather service issues its first warning, it keeps in constant touch with the highway department on the storm's progress, even though there may be no change in the original forecast.

This type of service has enabled division maintenance engineers to organize crews in advance and use personnel to the best advantage; to ship



Rotary plows move snow off an Ohio highway to make room for additional snowfall. The specialized weather announcements enable county snow-clearance crews to begin work before the snow starts mounting.

New highway interchange demonstrates **Three** of fir plywood



Fir plywood helped cut costs and achieve smooth concrete on this just completed New Orleans interchange.

Private weather service alerts headquarters of Ohio Department of Highways; information is radioed to division to be hit by adverse weather

Following a forecast on the velocity and direction of the wind, Ohio Department of Highways trucks plow in the direction of the wind to avoid snow blowing back on the highway.



Key advantages of concrete forms

1. smooth concrete surfaces

Because fir plywood had proved superior on previous jobs, it was again specified for this new 3,800 foot interchange on the Airline Highway, New Orleans. The contractors report: "It gives the smooth surface that inspectors like to see."

2. economy through re-use

The $\frac{5}{8}$ " and $\frac{3}{4}$ " panels of Exterior PlyForm used on the job gave an average of 30 re-uses. Less than 100,000 square feet of Exterior PlyForm was required for all form work on beams and roadbed of the four-lane structure.

3. time and labor savings

Job Superintendent Don Ducote says this about PlyForm: "I'm well satisfied with it. It's faster and more economical—and safer. It covers 32 sq. ft. at once, and that's a lot of area to walk on when you're up in the air." Other advantages cited: tightness, no leakage of concrete.



ALWAYS SPECIFY BY DPPA GRADE-TRADEMARKS

INTERIOR PLYFORM®—standard concrete form grade made with moisture-resistant glue. Gives multiple (10-12) re-uses.

EXTERIOR PLYFORM®—standard form grade made with waterproof glue. Gives maximum (25 or more) re-uses.

OVERLAID FIR PLYWOOD—special panel with hard, glossy fused resin-fiber surfaces. Waterproof glue. Up to 200 re-uses.

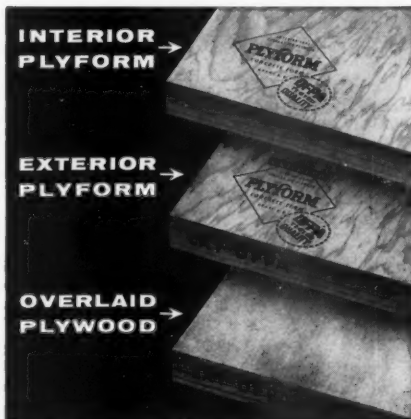
FOR YOUR FILES: Complete application-specification-design portfolio assembly. Write (USA Only) Douglas Fir Plywood Association, Tacoma 2, Washington, Dept. 138.



Laying Exterior PlyForm for the overpass roadbed. Big 4 x 8 foot panels speed work, give tight form construction that prevents leakage and provides smoother concrete surfaces.



Pouring for one of the supporting beams. Fir plywood is ideal for form work of this kind; panels are light, easy to handle and move. Plywood forms require less bracing and backing, cut construction time.



snowplows to areas before a storm and avoid mounting snow; to distribute chemicals over highways and avert ice formation; and to avoid damage to the highway itself.

Forecast aids divisions

The step-by-step procedure in a hypothetical case will show how this works. Say around midnight on a given date, Weather Corp. determines that Lorain County, in Division 3 near Lake Erie, will be the center of a freezing rainstorm expected to begin about 6 a. m. In addition, the forecast states that the rain will subsequently turn to snow and temperatures will drop from about 30 degrees at the storm's outset to near zero later in the day.

Weather Corp. immediately teletypes the forecast to the state highway department office in Columbus, and stays in close touch with the department throughout the emergency.

The Columbus office, after the first alert, teletypes the information to the division maintenance engineer in Division 3. The information is then relayed by radio or telephone to Lorain County that the storm is approaching. The Lorain County superintendent will then alert his crews to stand by, and as the storm moves in, workers immediately apply chemicals before the pavement becomes coated. This prevents the ice from freezing tight to the pavement as the temperature descends, and materially assists in the removal of ice as the temperature starts to rise.

Should the rain change to snow, snowplows already on the scene go to work keeping the snow from mounting. Trucks apply chemically treated cinders or sand to provide traction for traffic.

At the highway department's central office in Columbus, a constant surveillance is maintained over the emergency in Division 3. Copies of the original alert to Division 3 and later data supplied by the weather service are retained. At 6 a. m. and 12 noon, reports are sent in from Division 3 on road conditions and the steps the division is taking to minimize the storm's effect. Road conditions must be reported to the highway department by each division at least at these two times daily from December 1 to March 31.

(Continued on next page)

change.

AIRLINE INTERCHANGE
LOCATION: New Orleans, Louisiana
CONSULTING ENGINEERS
AND ARCHITECTS: Palmer & Baker
CONTRACTOR: Louisiana Paving Co.

For more facts, use Request Card at page 18 and circle No. 242

ENGINEERS

NOVEMBER, 1957

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Snow drifts, caused by high winds and dropping temperatures did not block this road for long. The highway department received the forecast from the Weather Corp. of America and notified the particular division which had the plow out in a matter of minutes.

(Continued from preceding page)

At 4 p. m. Division 3 teletypes the central office that the intensity of the storm is taxing the equipment and manpower. The maintenance engineer of adjacent Division 4, where the storm is not as serious, is called in and instructed to immediately send whatever equipment he can spare to Lorain County.

At 11 p. m. Division 3 reports the situation well in hand. What is more important, the roads have been kept open throughout the emergency.

Equipment in action

The coordination of such an operation, particularly following an accurate, specialized weather forecast can best be illustrated in an actual freezing rainstorm that hit the Sandusky Bay Bridge area, Division 2, in January, 1954. Weather Corp. had issued its forecast of the storm and the steps already described were taken.

As the bridge tender was calling the highway garage in Erie County to report that the rain was starting to freeze on the bridge, he glanced out the window and saw maintenance men already coating the bridge with chemicals and abrasives. THE END

Royster receives new post in the BPR

The new assistant commissioner for operations of the Bureau of Public Roads is Paul F. Royster, who will also continue to serve as assistant to the Federal highway administrator, Bertram D. Tallamy.

Succeeding the retiring A. C. Clark, Royster will direct several major BPR activities which are concerned with the construction and maintenance of all roads in Alaska; highway construction in national forests, national parks, Indian reservations, and foreign countries; defense highway and mobilization planning; and engineering development work aimed at increased use of available manpower.

Royster is a founder and member of the American Society of Traffic and Transportation and the National Defense Transportation Association.

Sewer construction methods presented in new film

The latest and most efficient methods of sewer construction are presented in a new sound, color film prepared by the Clay Products Association. Titled "Here's How, with Clay Pipe", the 20-minute movie describes how to construct modern underground waste systems.

Beginning with the initial surveying, the viewer is shown the various methods of excavation and proper use of trench-digging equipment. The importance of sheeting and bracing to prevent cave-ins, plus proper trench grade, is explained. Selection of sand, gravel, or cement for supporting strength, as well as the conditions under which each should be used, is emphasized. The film also explains how to properly dig bell holes, how to lay and join pipe using hot pour or compression-type joints, and how to test for infiltration prior to backfilling.

Reservations for showing the film may be obtained by sending a request to Mr. Robert Scott, Clay Products Association, 100 N. LaSalle St., Chicago 2, Ill.

CONTRACTORS AND ENGINEERS

WATCH FIRESTONE WHERE HEAVYWEIGHTS HUSTLE BIG JOBS!



Firestone Rock Grips fit your machinery to any job condition

Firestone Tubeless Rock Grips let you roll the big loads out ahead of schedule. Two great tread designs combine traction and toughness to move your heavyweights over any terrain without changing tires to match each job. You get the full flotation you need for sand and soft stuff. You get the armored grip you need for rough runs over splintered rock or shale. Safety-Tensioned Gum Dipped[®] NYLON bodies and cut-resistant treads defy gashes and bruising impacts—make Firestone the top choice of off-the-highway users. Your Firestone Sales Engineer will show you why you'll make them your top choice, too. Contact him today through your local Firestone Dealer or Store.

Enjoy the Voice of Firestone on ABC television every Monday evening.

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Firestone

BETTER RUBBER FROM START TO FINISH

For more facts, use Request Card at page 15 and circle No. 243



ROCK GRIP WIDE BASE

ROCK GRIP

Convention calendar

November 10-16 American Society of Sanitary Engineering

Meeting, Lauderdale Beach Hotel, Fort Lauderdale, Fla. Frank Warren, general chairman, ASSE, 818 N. E. First Ave., Fort Lauderdale, Fla.

November 12-14 National Association of Corrosion Engineers

Fall Meeting, Northeast Region, Penn-Sheraton Hotel, Pittsburgh, Pa. A. B. Campbell, executive secretary, NACE, 1061 M & M Bldg., Houston 2, Texas.

November 15-22 American Association of State Highway Officials

Meeting, Conrad Hilton Hotel, Chicago, Ill. A. E. Johnson, executive secretary, AASHO, 917 National Press Bldg., Washington 4, D. C.

November 18 Cleveland Engineering Society

Sixth Annual Construction Conference, Cleveland Engineering Society, Cleveland, Ohio. Edward Wolfson, chairman, CES, 2136 E. 19th St., Cleveland, Ohio.

December 4-5 The Asphalt Institute

Meeting, New York Athletic Club, New York, N. Y. Asphalt Institute, University of Maryland, College Park, Md.

December 10 Material Handling Institute

Annual Meeting, Roosevelt Hotel, New York, N. Y. MHI, One Gateway Center, Pittsburgh 22, Pa.

December 11-12 National Construction Industry Conference

Conference, Congress Hotel, Chicago, Ill. V. J. Danilov, public relations manager, Illinois Institute of Technology, 35 W. 33rd St., Chicago 16, Ill.

January 6-10 Highway Research Board

Annual Meeting, Sheraton-Park Hotel, Washington, D. C. Fred Burggraf, director, HRB, 2101 Constitution Ave., Washington 25, D. C.

January 13-15 Weed Society of America

Meeting, Peabody Hotel, Memphis, Tenn. Leonard Lett, agronomist, WSA, National Cotton Council, P. O. Box 18, Memphis 1, Tenn.

January 16 The Beavers

Annual Award Dinner, Biltmore Bowl, Los Angeles, Calif. J. W. Watson, assistant secretary-treasurer, The Beavers, 3932 Wilshire Blvd., Los Angeles 5, Calif.

January 16-18 Associated General Contractors of Minnesota

Meeting, Hotel St. Paul, St. Paul, Minn. R. J. Hendershott, manager, AGCM, 910 Builders' Exchange Bldg., Minneapolis 2, Minn.

January 20-23 American Road Builders' Association

Annual Convention and Exhibit, Sheraton-Park Hotel, Washington, D. C. Norman T. Alquist, administrative services manager, ARBA, 600 World Center Bldg., Washington 6, D. C.

January 22-23 National Agricultural Limestone Institute, Inc.

Annual Convention, Hotel Statler, Washington, D. C. Robert M. Koch, president, NALI, 1015 12th St. N. W., Washington 5, D. C.

January 26-30 Associated Equipment Distributors

Annual Meeting, Conrad Hilton Hotel, Chicago, Ill. W. G. Bowman, administrative assistant, AED, 30 E. Cedar St., Chicago 1, Ill.

West Coast plant produces Yale & Towne shovels

Trojan tractor shovels are now in full production at Yale & Towne Mfg. Co.'s new West Coast material-handling equipment plant in San Leandro, Calif. Both the 2-cubic-yard and 1½-cubic-yard-capacity Trojans are being manufactured. These tractor shovels are used in roadbuilding, construction, and material-handling fields.

NOVEMBER, 1957

Koehring Division promotes Chadwick

The appointment of John E. Chadwick as vice president and sales manager in charge of sales, service, and sales promotion for the Koehring Division has been announced by the Koehring Co., Milwaukee, Wis. The division is the excavator manufacturing division of Koehring Co.

The division also appointed three new district sales representatives. Edward Aho will cover Michigan, Ohio, Pennsylvania, Wisconsin, and northwestern New York. Harvey C. Perry has been assigned to Washington, Oregon, Idaho, Montana, and parts of Wyoming. Anthony J. LaPorte will handle the states of Louisiana, Texas, Oklahoma, and New Mexico.

"Boyl I thought we'd never get out of that muck!"



find the profits in the tough jobs
with a **BIG LORAIN-85A**



Wig-wagging a heavy-duty 3-yd. dragline bucket at the end of a 70-ft. boom, as shown in this picture, requires a machine with plenty of guts... lots of power, lots of endurance, lots of production... and that's why a Lorain-85A was chosen. Here are more reasons why Lorain-85A's measure up so well on all kinds of high-pressure, extra heavy-duty jobs — and why they can produce more profits for you!

MORE POWER — An abundance of power delivered through a torque converter that automatically adjusts engine torque to match exactly the machine needs... lots of "hang-on."

EASIER CONTROLS — Only 2 hand levers to actuate Lorain "Joy Stick" air power controls — reduce effort, motion and fatigue — increase speed, comfort and production.

MODERN MOUNTINGS — The new "Shear Ball" mounting that revolves the turntable on a huge, sealed "ball bearing"... eliminates all rollers, exposed roller path, center pin and nut with their requirements of adjustment and maintenance. Proven by 8 years of service, hundreds of installations.

OPERATOR-DESIGNED CABS — Just what the operators asked for... added comfort, convenience and efficiency. They look different — they are different.

MORE CRAWLER CHOICES — 2 sizes — one 15' 6" long x 11' 10" wide for general-purpose service as shovel, crane, dragline, clamshell or hoe. One extra long and extra wide (18' 6" x 14' 2") for maximum crane lifting capacities and wide-radius dragline and clamshell work. Both full-air controlled, of course.

LONGER SQUARE-TUBULAR-CRANE BOOMS — Patent-applied-for square-tubular-chord crane booms. They're lighter, stronger. You can lift more, can reach out farther and can reach higher up, to 240 ft.

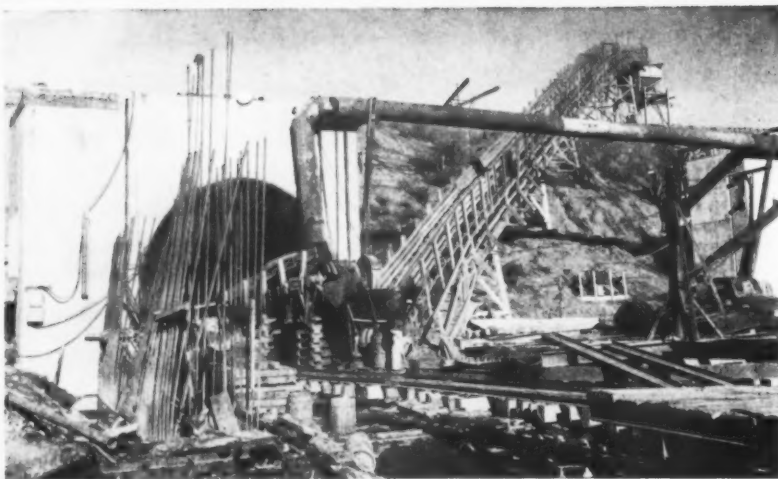
HIGHER CAPACITIES — Up to 60 tons as a lifting crane — 2½ yds. as a shovel or hoe.

You won't find these features in any other comparable machine. That's why the Lorain-85A will do such a much better job for you. Your Thew-Lorain Distributor can give you the full story on this and other models in the Lorain line. See him today.

THE THEW SHOVEL CO., LORAIN, OHIO



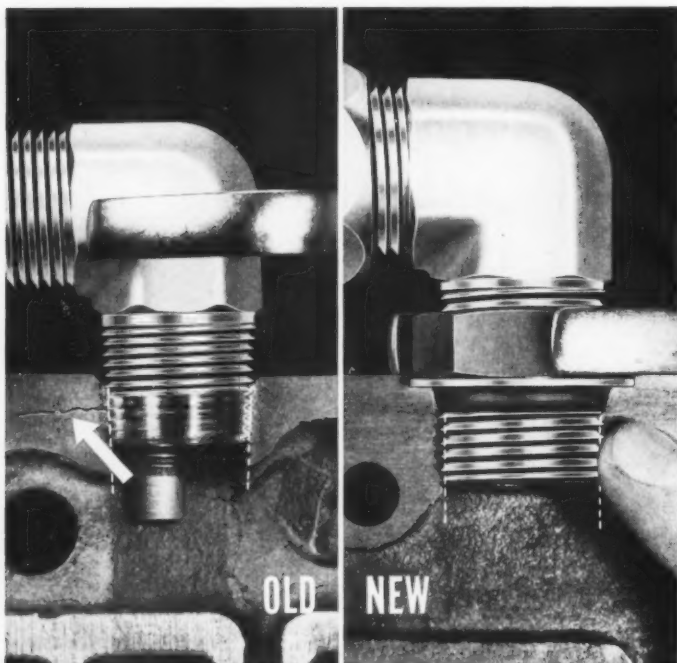
For more facts, use Request Card at page 18 and circle No. 244



While the mole works inside a downstream tunnel, material flows along the Barber-Greene conveyor to the portal, then up an inclined conveyor to the surge bin on the bench. This method was used because another contractor was working on the spillway adjacent to the downstream portal. The pipe at right brings air to the tunnel.

Oahe Dam outlet tunnel

Conveyors carry muck from headings to haul units outside tunnels; fallouts in shale roof of tunnels filled with concrete or gunite

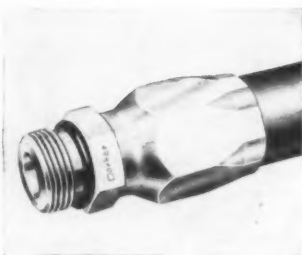


How Parker straight-thread fittings solve leakage problems

Forget about danger of cracking or distorting valve bodies by over-tightening the fittings. Forget about messy pipe "dope." Forget about leakage problems resulting from tapered pipe threads in high-pressure hydraulic systems.

Eliminate these problems. Use Parker O-ring seal straight-thread fittings (which conform with the SAE Standard for Hydraulic Tube Fittings) for leakproof, trouble-free connections. Available on both Triple-lok (see Catalog 4310) and Ferulok (Catalog 4320).

Ask your Parker Distributor today for catalogs or write to —



New, Broader Line of Hose-lok fittings for medium- and high-pressure hydraulic service. No skiving of hose cover. Easier make-up saves time and money. Longer performance, greater re-usability. Catalogs 4433 and 4434.

TUBE AND HOSE FITTINGS DIVISION, Section 435-I
The Parker Appliance Company
17325 Euclid Ave., Cleveland 12, Ohio

Parker
Hydraulic and fluid
system components

For more facts, use Request Card at page 18 and circle No. 245

Setting and breaking records for large-bore tunneling in soft rock was the usual thing for Oahe Constructors, the joint-venture firm finishing work on the downstream tunnels and shafts of Oahe Dam on the Missouri River near Pierre, S. Dak.

At present, upstream tunnels are complete, and work is coming to a close on the downstream tunnels and shafts. The entire \$380 million project, being built under the supervision of the Omaha District of the U. S. Army Corps of Engineers, is scheduled to be complete in 1963 or 1964. When it takes its place as a key unit in the Pick-Sloan plan, it will be one of the largest earth-fill dams in the world.

The three tunnel contracts constitute a major portion of the outlet works construction for the dam. The six big tunnels penetrate the soft Pierre shale of the dam's right abutment, extending approximately 1,650 feet upstream and an equal distance downstream from the control shafts at the center.

The upstream tunnels were bored

to a diameter of 24.75 feet and the downstream tunnels to a diameter of 23.25 feet. They are lined with concrete to leave a net section 19 feet in diameter. Connecting the upstream and downstream tunnels is a 150-foot-long, horseshoe-shaped transition and gate section, which was excavated 30 feet wide and 40 feet high.

From the top of the abutment, vertical shafts 38 feet in diameter are being drilled down to the center of the tunnels to house the control gates and provide access to the tunnels.

Take over original contract

The first stage of the outlet works construction covered the upstream tunnel sections, and Mitty Constructors of Los Angeles, Calif., pioneered the use of a huge mechanical mining machine, called the mole, on this work. But before completion of this stage, a combine of Midwestern contractors known as Oahe Constructors bought Mitty's complete setup and finished the contract.

This combine was the successful bidder on the downstream tunnels (Stage III) and the control shafts and transition sections (Stage IV). This group is made up of Foley Bros., Inc., St. Paul, Minn.; Winston Bros. Co., Minneapolis, Minn.; Donovan Construction Co., St. Paul, Minn.; C. F. Lytle Co., Sioux City, Iowa; and Missouri Valley Constructors, Inc., Leavenworth, Kans. The combine also holds the Stage V contract for the superstructure of the control shafts and installation of cranes, gates, and other equipment—work which is just getting under way.

New rig more powerful

The combine's fast work on the outlet tunnels is attributed to a newer model of the mole, a larger, heavier, faster, and more powerful rig than the one first used by Mitty. This rig drove the big tunnels at rates many times faster than had been possible before. Rates went as high as 10 feet per hour and 129 feet in an 18-hour day. But the average rate of driving over the life of the job was slowed down by numerous fallouts caused by the severe faulting of the shale at the site of the dam. At times, progress was completely stopped for periods of from one to 20 days, while much hand



TRANSITS & LEVELS

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For more facts, circle No. 246

CONTRACTORS AND ENGINEERS

Tunnel crews take a break at the "holing through". The cutter heads of the mole are contra-rotating. The inner one is 18.5 feet in diameter and the outer head, adjustable to 30 feet in diameter, has six rows of teeth and breakers.



Inner rushed to completion

excavation was done. But the big mining machine eliminated the need for blasting, which would have been hazardous in this formation. And its speed made it possible to mine one complete tunnel within a 60-day period, which was the maximum time permitted for exposure of the shale before the concrete lining was placed.

Two concentric contra-rotating cutter heads make up the business end of the mining machine. The inner head is 18.5 feet in diameter and is fitted with three radial rows of cutting teeth and breaking disk rollers. The outer cutter head has six rows of teeth and breakers and is adjustable to a maximum diameter of 30 feet.

Driving the cutter heads are two 200-hp electric motors, geared down so that the inside head rotates at 8 rpm, while the outer cutters rotate at 6 rpm in the opposite direction.

Cutting into face

As the machine moved forward, its teeth cut concentric grooves or kerfs in the shale face. The spool-shaped disk rollers behind the teeth applied pressure to the areas between the kerfs, causing the shale to shatter and fall to the floor of the tunnel. Buckets on the outer cutters picked up the broken shale, carried it to the top, and dumped it onto a conveyor belt leading back to the tunnel mouth.

The entire assembly was mounted on a huge jumbo which traveled on rails on the tunnel floor. Immediately behind the cutter heads, the operator's control panel was protected by a heavy steel shield. Directly behind the operator's canopy on the jumbo was a jig for setting the tunnel ring beams. These were installed at 4-foot intervals as the jumbo moved ahead.

Forward and backward movement of the jumbo, as well as horizontal and vertical adjustments for line and grade, were controlled by a series of hydraulic rams.

Conveyors carry muck

The buckets on the outer cutter head dumped the broken shale onto a conveyor which runs the length of the jumbo. This conveyor discharged onto a Barber-Greene 30-inch conveyor which extended out of the tunnel and was lengthened in 72-foot

(Continued on next page)



"This Anthony Trailer carries two extra tons every time it leaves the quarry

...and outhauls any six-wheeler I'm familiar with."

A. J. Jalovec, Sr.
A & J CARTAGE
5953 Archer Road, Argo, Ill.



The Teleramic "V" Seal Hoist Is A Major Factor In Frameless Trailer Success

Proven "V" seal packing is only one of many quality features in the Teleramic Hoist design. Because the dry operating "V" seal is self-adjusting, repacking or manual adjustment of the Teleramic cylinder is very rarely needed. "Truss rings" encircle and reinforce the ends of each cylinder tube to prevent "flaring". Extra long bronze bearings and long overlap of the cylinders help keep them perfectly aligned.

Like you, Mr. Jalovec likes to see fixed job costs go down. Every two tons of extra legal payload he hauls with his Anthony Trailers means less time per job. Because this frameless dump body is lighter for its load capacity, gas and oil costs are also cut. Mr. Jalovec says maintenance on this dump body is "nil" . . . Anthony distributor service is "wonderful".

A & J Cartage generally uses this Frameless Trailer to haul 30,000 pounds of payload from the quarries to ready-mix batch plants. There, his drivers dump right into the hoppers.

The hoist is in an extreme forward position with much of its weight up front. That's why Mr. Jalovec can haul more legal payload on the important rear axle.

To cut costs on your jobs, check into the long list of Anthony Teleramic Hoist and Dump Body models. One is tailored to suit your particular operation.

Buy The Dump Body That Has The Service

Over 100 Anthony Distributors are located nationwide. At least one is convenient of you . . . ready to give immediate service on all Anthony equipment. Complete descriptive literature is now available on Anthony Frameless Dump Trailers and Teleramic Hoists. No obligation, of course! Write to: 1754 Baker St.

ANTHONY COMPANY • Streator, Illinois

For more facts, use Request Card at page 18 and circle No. 247



On the bench, 300 feet up the abutment from the tunnel portal, a Euclid scraper rolls under the 25-yard surge hopper to pick up a load of muck. The bin is equipped with a Moore rolling gate, permitting the scraper to be loaded quickly.

(Continued from preceding page)
increments as the mole burrowed on into the earth.

In the upstream tunnels, a short portable conveyor carried the waste from the end of the tunnel conveyor to haul units. In the downstream tunnels, a different method was used, since the spillway contractor was working in the same area and there was very little working space at the tunnel mouths. Here, an inclined conveyor ran about 300 feet up the side of the abutment to a 25-yard surge bin on a bench. A Caterpillar DW20 and a Euclid scraper hauled this material away.

The tunnel conveyor was supported off to one side of the tunnel so that it does not interfere with the narrow-gauge railroad which brings in tunnel ribs and other supplies needed at the heading.

Many fallouts occurred in the roof of the tunnel, and these were usually cribbed up and left to be filled with concrete or grout. Unusual work was needed once, when a fallout bent several of the steel tunnel ribs and almost trapped the mole, which was cutting out a 30-foot-diameter upper section of the transition section. When enough debris had been cleared away, and the mole backed off from the heading, the caved area was found to extend as high as 65 feet above the tunnel roof. Since this was too big to be supported by cribbing, the end of the tunnel was filled with sand and a hole, drilled from the surface to the fallout area, provided passage for concrete to fill the fallout area above the roof.

In mining the transition section, the mole first cut a 30-foot tunnel to form the round upper part of the horseshoe. Ring supports were placed at 4-foot centers and, after the mole had been removed from the section, a support jumbo held up the tunnel crown while the bottoms of the rings were removed to permit the section to be enlarged.

Material cut out with air-operated paving breakers and a tractor-ripper was loaded into muck cars by an Eimco loader and then hauled out on the tunnel railway. The concrete lining of this section was formed and placed in from four to seven lifts. During the work, the relative humidity was maintained at 95 per cent or

higher and temperatures at 70 to 80 degrees F to help prevent shale deterioration.

The concrete invert of the tunnel was placed while the mole was at work. Concrete buckets were hauled into the tunnel by rail cars, and picked off the cars and placed by a Monorail system. The arch section of the lining was placed by a special bucket handling rig and a Pumpcrete mounted on a large jumbo. After the Blaw-Knox collapsible steel-arch forms had been placed, a special pipe jumbo slid inside the forms, carrying Pumpcrete pipes with gates that matched the openings in

the forms. Just behind was the big jumbo carrying the bucket handling rig and the Rex Model 200 double Pumpcrete. A work train carrying two Gar-Bro concrete buckets per car, with space for a third, backed up to this jumbo. The rig picked a bucket off the car and carried it over the Pumpcrete hopper. Air-operated gates dumped the concrete into the Pumpcrete.

After the 30-inch-thick concrete lining of the tunnels was placed, any voids between the shale and the concrete were filled by pressure-contact grouting. Then the shale surrounding the tunnel was further consolidated



On the ILLINOIS TOLL ROAD...

"Eucs"

outnumbered
rubber tired

Euclid "Twin" Scrapers—42 of them—are proving that they move the cheapest dirt on all lengths of haul and under every job condition.



"Euc" Loaders and Bottom-Dumps are being used by several contractors on the Illinois Toll Road—they're a "natural" where big yardage must be moved in a hurry.

With a heaped capacity of 32 yds. and a total of 518 h.p., the TS-24 Euclid "Twin" outproduces any other scraper—moves more yardage at lower cost and gets more work done faster.



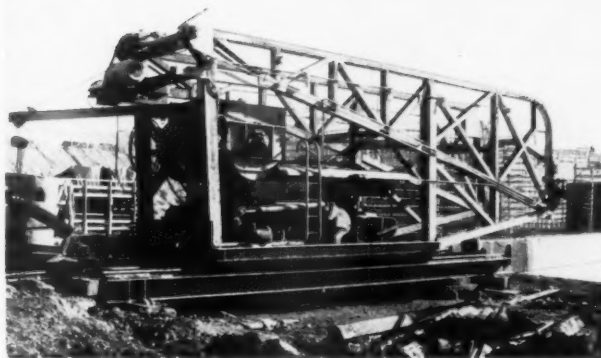
SUCCESSFUL BIDDERS FIGURE ON "EUCS"



by a second pressure grouting through holes which penetrated 5 feet into the shale. Nine 1½-inch grout pipes were inserted in each 24-foot monolith of the concrete lining for this grouting operation.

Concrete for the tunnel linings was produced in a Noble automatic batch plant with two Smith 2-yard tilt mixers. Aggregates were received by rail and stored over a 450-foot-long Armco Multi-Plate reclaiming tunnel 84 inches in diameter. A 24-inch belt conveyor in the tunnel brought the materials out to a 250-foot-long, 24-inch inclined conveyor, which terminated in the distributor at the top of the plant.

A concrete-placing jumbo, or cherry picker, gets ready to raise a Gar-Bro 2-yard bucket from a flatcar and over the hopper of the Rex Model 200 double Pumpcrete it carries. Concrete goes through a series of pipes to a concrete-placing jumbo inside the tunnel forms.



Three cement silos provided a storage capacity of 3,800 barrels in addition to the 500-barrel storage bin in the plant. The mix was dumped into Gar-Bro 2-yard buckets on flatcars and hauled to the placing equipment for the Stage I contract. Dumpcrete trucks of 4-yard capacity were used to haul concrete during work on Stages III and IV.

This plant was first set up on the upstream end of the tunnels and used for concreting the upstream tunnels under the Stage I contract. Then the plant was moved intact to a new position near the downstream end of the tunnels to produce the mix for the Stage III and IV contracts. William Reese of Thief River Falls, Minn., who makes a business of moving structures such as grain elevators, gave the 140-ton plant its 1½-mile ride.

Tractor digs shafts

The method used to excavate the vertical shafts was as unique as the tunneling machine. The key machine, however, was an Oliver OC-12 tractor equipped with an angled dozer and an Ateco ripper.

A vertical hole was first drilled in the center of each of the 38-foot-diameter shafts and a heavy 14-inch pipe was set in the hole. A collar around the pipe held two arms which were attached to the front and rear of the tractor to guide it in an accurate circle.

As the tractor traveled around the circle, its scarifier rooted up the shale and the angled dozer pushed it in toward the middle. Special teeth on the outside of the tractor cut the hole to the exact diameter. When the central part of the excavation was to be cut, the tractor was released from the bridle and was operated manually.

The loose material was removed from the shaft by an American stiff-leg derrick using an Owen 2-yard clamshell bucket. Three of these American stifflegs with 70-foot booms served the six shafts while they were under construction.

Later when the tunnel section was completed below, a hole was drilled off-center down to the tunnel. The loose material was then dozed into this hole and removed through the tunnel below on a belt conveyor.

As the shaft excavation went down, a spider was installed on the top of the pipe to support it in the center of the shaft. When the tractor had excavated about 20 feet of shaft, the 21-foot-long pipe was removed while

—For more facts, circle No. 248

Over 200 Euclid Scrapers, Bottom-Dumps and Rear-Dumps . . . plus 16 big TC-12 "Twin" Crawlers . . . are already on this "Road Show".

Overall competitive equipment combined

THERE'S keen competition among contractors for highway work — that's why you'll find Euclid earthmovers the outstanding equipment choice on jobs like the Illinois Toll Road. With their low cost, high production performance, "Eucs" provide a bidding advantage as well as protection for the contractor's profit margin. In spite of delays by weather and tough working conditions, over 225 "Eucs" — scrapers, bottom-dumps, rear-dumps and crawlers — are piling up yardage to help get the earthmoving done on schedule.

The performance of Euclid equipment on the Illinois Toll Road, as on most other major earthmoving projects in the last 20 years, is one of the many reasons why owners say from experience **Euclids are your best investment.**

EUCLID DIVISION GENERAL MOTORS CORPORATION, Cleveland 17, Ohio

**These contractors*—big and small
—are using "Eucs" to make the
dirt fly on the Illinois Toll Road:**

Arcole Midwest Corporation
L. G. Arnold & Griffith & Sons
Carl Bolander & Sons
C.K.G. Associates
L. F. Fleming Co.
S. J. Groves & Sons Co.
James Peterson & Sons Co. and
Kluck Construction Company
Lakeside Construction Co.
McCarthy, Mass & Dillon
Ralph Myers Contracting Corp.
O'Neil and Winkelman
Orr Construction Co.
Rockford Blacktop Const. Co.
Ryan Brothers Co.
Ryan Construction Co.
Western Contracting Corp.
W. M. Wyant Co.

*As of August 1, 1957

Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE





Next to the form yard is the Noble Model 354 batching plant producing concrete for the tunnel linings. A 250-foot-long inclined conveyor brings aggregates from the reclaiming tunnel to the top of the plant. Dumpcrete trucks are lining up to haul concrete to the portals.

the hole was drilled down another 20 feet. This operation was repeated until the shafts had penetrated the 160 feet down to the tunnels.

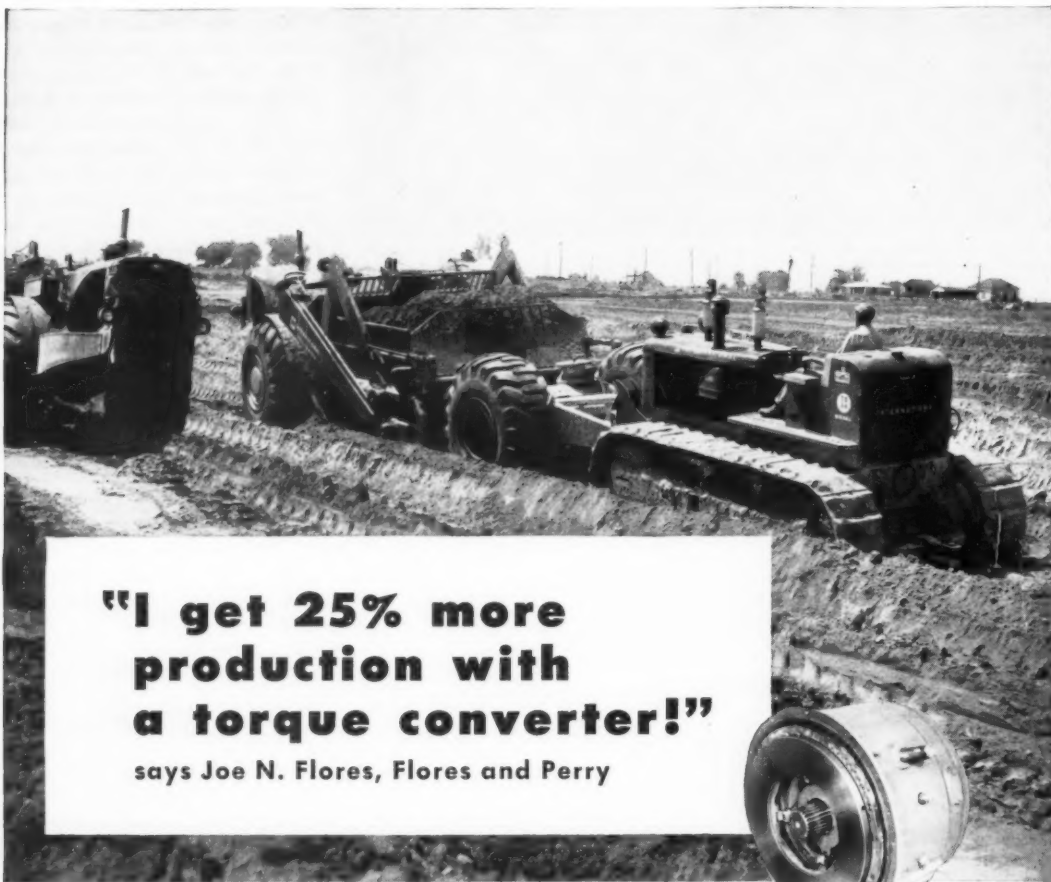
As the shafts were sunk, the shale sides were gunited to protect them from weathering. The gunite was covered with a wire mesh, and ring beams were installed at 4-foot centers for protective supports. These beams were later embedded in the shaft's concrete lining, which had to start from the bottom and be built up after excavation was complete.

Managing the operation for Oahe Constructors is project manager

George L. Lindquist. The assistant project manager is Robert G. Hoover. General superintendent George L. Lyle started on the Stage I operation with Mittry and switched over to Oahe Constructors when they took over the work. The superintendent on the Stage III operation is Tom Canfield; the superintendent of Stage IV is J. L. Feller, and the project engineer is James G. Tripp, Jr.

The area engineer for the Corps of Engineers on the Oahe project is John W. Sibert, Jr., who is assisted by Charles R. Brown and Sherman W. Williams. The resident engineer on the outlet works is Albert F. Arrington. Col. T. J. Hayes, III, is district engineer of the Omaha District of the Corps.

THE END



"I get 25% more production with a torque converter!"

says Joe N. Flores, Flores and Perry

Working on an 8-mile grade-raising job on Central Valley Highway south of Hanford, California, a torque converter equipped International TD-24 is push-loading two "75" Pyscrapers to the tune of 20 cu. yd. heap loads in only 42 seconds!

Production? You bet! And here's the reason for it:

"Our torque converter equipped TD-24 Tractor gives 20 to 25 per cent more production than comparable mechanical drive units!" says Joe N. Flores, of Flores and Perry, the contracting firm operating the TD-24. "That's not all, either," Mr. Flores goes on. "We estimate the torque converter drive improves service life by something like 25 per cent!"

Here's how the torque converter does it: It multiplies engine torque up to 6:1 when required. It permits

the engine to deliver constant high horsepower output. It automatically matches power to load demands, with gear-shifting minimized or eliminated, for increased operator efficiency. Heavy load pick-up is smooth and even, without clutch slippage. Shock loads and vibrations are cushioned out through the converter's fluid connection, for long tractor life and minimum maintenance. An infinite variety of torque ratios is available to work with, permitting smooth, safe, accurate control of loads.

Leading tractor manufacturers today offer torque converter drives as standard or optional in various models... and standardize on Twin Disc torque converter components for maximum performance and proven dependability.

See your dealer now for complete

information on torque converter equipped machines. Try one on your next contract and you'll agree with what leading contractors everywhere are saying: The torque converter drive is the wisest, most profitable investment you can make in a heavy-duty machine!

Twin Disc Clutch Company, Racine, Wisconsin; Hydraulic Division, Rockford, Illinois.



For more facts, use Request Card at page 18 and circle No. 302

Steel structure design covered in new book

"Design of Steel Structures", by Edwin H. Gaylord, Jr., and Charles N. Gaylord, deals with the design of structural members and their connections, with applications to steel bridges and building frames. In addition, some attention is given to aluminum, because of its increasing importance as a structural metal. Understanding of the basic philosophy of structural design is emphasized.

Chapters cover structures, metals, and fasteners; tension members; compression members; beams; combined stresses; connections; plate girders; industrial buildings; steel bridges; multi-story buildings; and an introduction to plastic design. Each topic is introduced with a discussion of the relevant theory and with references to experimental evidence. A list of problems appears at the end of each chapter. Diagrams and formulas abound in the 540-page book.

The \$8 book may be purchased from the publisher, McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 36, N. Y.

Signode Steel offers column design calculator

A pocket calculator that is said to make easy column form designs is now available from the Signode Steel Strapping Co. The calculator answers troublesome problems of form design on columns and piers up to 48 inches square or 65 inches in diameter, including rectangular cross sections.

Specially made for contractors, architects, and engineers, the calculator specifies the correct lumber sizes, the arrangement and spacing of the bracing members, and the proper size and spacing of the steel strapping which replaces clamps in these designs.

All contractors, architects, and engineers interested in receiving the calculator should send \$1 to Signode Steel Strapping Co., Calculator Dept., 2600 N. Western Ave., Chicago 47, Ill.

CONTRACTORS AND ENGINEERS

avoid legal pitfalls

Batch plant drainage damaged adjacent property

THE PROBLEM: A state highway paving contractor constructed temporary storage bins on leased ground for handling and processing slag for use in concrete mix. Post holes were drilled through sandstone, about 3 feet deep, to receive posts supporting the bins. Large quantities of polluted creek water were poured over the slag in a continuous spray in a wetting-down process. The site was on higher ground than plaintiff's nearby home-stand. There was a valuable spring on plaintiff's land, and it became polluted three days after the contractor started operating the bins. A dye and other chemical tests indicated that the subsoil drainage from the bins was the cause. Corrugated iron could have been so placed under the bins that the polluted water would not find its way to the spring. But no steps were taken to avoid the pollution until the bin operations were completed several weeks later. In addition, acid in the water destroyed plaintiff's heating and plumbing systems and fixtures. Was a \$16,000 damage award in his favor excessive?

THE ANSWER: No. (*Burr v. Adam Eidemiller, Inc.*, 126 Atl. 2d 403, decided by the Pennsylvania Supreme Court.)

The court said that the jury could disregard the contractor's excuse that it would have cost \$25,000 to have moved the batch plant, and that the time involved would have delayed performance of the paving contract.

Pay where work is materially changed

THE PROBLEM: A prime contract called for construction of a state sewage-treatment plant. The contractor sublet placement of sixty piles and caissons in foundation work for part of the construction. After eight caissons had been placed, the remainder was omitted under a change order. The subcontractor's right to pay was governed by a clause to the effect that if the quantities of piles or caissons should be increased or decreased from those based on the assumed rock surface, specified unit prices should be paid the subcontractor or credited to the prime contractor for such increase or decrease. But the prices should not apply to items of a certain group which might be included or omitted. Did the clause apply to so substantial a change in the work as that calling for omission of all the remaining caissons after eight had been placed?

THE ANSWER: No. (*F. H. McGraw & Co. v. New England Foundation Co., Inc.*, 210 Fed. 2d 62, decided by the United States Court of Appeals, First Circuit.)

The decision reversed a contrary decision that had been rendered by the United States District Court for

Rhode Island, 113 Fed. Supp. 246.

The opinion of the higher court was influenced by a somewhat involved consideration of circumstances and contract provisions.

Damaging property by rock blasting

THE PROBLEM: Massachusetts statutes provide for condemnation of land for public use. In constructing an aqueduct for a metropolitan water district, nearby property not condemned was accidentally damaged by rock blasting. Was the Commonwealth, as sponsor of the improvement and condemnation, liable for the damage?

THE ANSWER: No. (*Sullivan v. Commonwealth*, 142 N. E. 2d 347, de-

Edited by A. L. H. STREET Attorney-at-Law

These brief extracts of court decisions may aid you. Local ordinances or state laws may alter conditions in your community. If in doubt consult your own attorney.

cided by the Massachusetts Supreme Judicial Court.)

The court said, in effect, that even if the construction of the improvement involved the risk of injuring property not specifically condemned, such injury was not compensable upon a theory of implied condemnation.

Picketing of work site is not held illegal

THE PROBLEM: Striking employees of a ready-mix concrete company picketed the ready-mix plants. Pickets also followed the company's delivery trucks to the construction sites where ready-mix was unloaded. Apart from carrying signs proclaiming strike against the ready-mix company, the pickets did not communicate with any of the men working on the construction projects. One-fourth of the working time of the truck drivers was spent at the ready-mix plants, one-fourth en route to and from construction sites, and half at the sites. Did the National Labor Relations Board err in deciding that the picket-

(Continued on next page)

IT'S NEW!

... and made to order for Kentucky State Highway Department



CEMCO MOBILE WORK SHOP

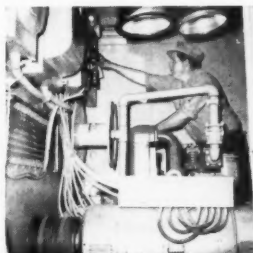
for contractors, highway and bridge maintenance, etc.

Equipped with 5 ton crane, 125 cubic feet air compressor, 15 KW generator — 300 ampere, 40 V. welder, this CEMCO Mobile Work Shop makes available a fast moving repair and construction unit to contractors, bridge maintenance crews and others.

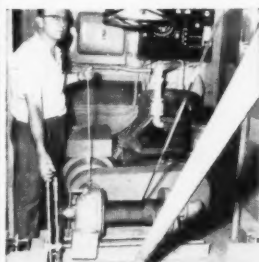
Mounted on a chassis of owner's choice, this CEMCO Shop, sister unit to the internationally known CEMCO Mobile Machine Shop, speeds on-the-job construction and repair. Job-to-job at highway speeds greatly extends usefulness and savings.



Roadside welding demonstrated here. Built-in compartment holds cable reels. Five additional compartments for other equipment, tools, supplies, etc. (Generator-welder can be run from outside power if available.)



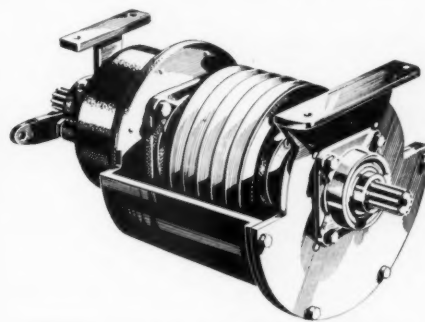
Operator regulates delivered amperage of generator-welder which is driven by CEMCO Split-shaft Power Takeoff. Same PTO drives Jaeger—125 cubic feet at 100 P.S.I.—air compressor. Note floodlights for emergency and "round the clock" operation.



Five ton winch easily operated from truck deck. Both this and the front end winch are powered by transmission PTO's. Note air compressor, hose reel, electrical control panel (right rear).



Boom can be dismantled and stored in special shelving when truck is in transit. Takes two men about twenty minutes to erect or dismantle boom. Special feature is two position sheave block mounted at rear of truck deck.



CEMCO's own Split-shaft PTO drives the combination generator-welder and the air compressor. Is available as separate unit for driving any truck-mounted equipment. Delivers full HP of any truck motor and turns in same direction as motor and at same speed.

CEMCO INDUSTRIES, INC.

GALION, OHIO

MANUFACTURERS OF: CEMCO—TRAILER JOCKEYS, FIFTH WHEEL CRANES, SPLIT-SHAFT PTO, DOCK RAMPS, PORTABLE LUBRICATING UNITS, BULK MATERIAL CARRIERS

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avoid legal pitfalls

ing of the construction sites was necessarily illegal?

THE ANSWER: Yes. (Sales Drivers, Etc., Union v. National Labor Relations Board, 229 Fed. 2d 514, decided by the United States Court of Appeals, District of Columbia.)

The court said that the Taft-Hartley Act does not prohibit concerted activity of striking employees against their employer merely because it comes to the attention of and incidentally affects employees of another. The existence of a common site, of the incidental effect on employees of neutral employers, and the existence of another place which can be pick-

eted—the premises of the employer against which a strike exists—are facts to be considered, but are not in themselves conclusive in deciding whether or not there is an illegal secondary boycott.

County contract was void

THE PROBLEM: Missouri, like other states, has a law to the effect that contracts for public work must be in writing and signed by authorized agents. Three Missouri county judges (commissioners) constitute a full board membership, and two constitute a quorum at a meeting. Two of the three members, conversing in a courthouse corridor with a contractor, authorized him to do certain earthmoving and construction work.

The third member—the presiding member of the court—was at some distance in the corridor, and was not consulted by the other members. The work was done and, at a meeting not attended by the presiding judge, the two members who had orally authorized the work to be done ordered a warrant to be issued. The presiding judge refused to affix his official signature, without which the warrant could not be cashed. Was the contractor entitled to a court order requiring the presiding judge to sign?

THE ANSWER: No. (State v. Miller, 297 South Western Reporter 2d 611, decided by the Kansas City, Mo., Court of Appeals.)

As a quorum, the two members could have audited and allowed the contractor's claim if it had been based

upon a valid contract. But the contract was void because it was not in writing and not authorized at an official meeting. The courts have often declared that public contract cannot be authorized by individual assent of members not given at a meeting of a board, when board action is required.

Sales tax on pilings

THE PROBLEM: A contractor prefabricated pilings of certain sizes and lengths and stored them to fill future orders. They were invoiced to purchasers by number, size, and length, installation costs being included. Were the pilings subject to Florida sales tax as being "tangible personal property" produced for retail sale?

THE ANSWER: Yes. (Green v. Reed Construction Corp., 91 So. 2d 654, decided by the Florida Supreme Court.)

The court said that the case was on a par with an earlier case decided by the court in which the sale of iron grill, manufactured according to specifications and at prices including installation, was subjected to sales tax on the lump sum price. (Harvey v. Green, 85 So. 2d 829.)

The decisions seem to imply that had the pilings and grillwork been invoiced separately from the installation price, tax would not have been assessable as to that price.

Silence ratified prebid

THE PROBLEM: Unit basis prebidding on a building project was called for as a basis for financing arrangements by the owner. The instructions stated that plans and specifications would be prepared after financing of the project, and that on completion of the plans and specifications the contractor should revise his bid so as to bring the contract price in line with prebid unit price items. Did the low and accepted bidder indicate satisfaction with the prebid figures by failing to revise them after receiving the plans and specifications?

THE ANSWER: Yes. (McGaffick v. Leigland, 303 Pac. 2d 247, decided by the Montana Supreme Court.)

The contractor knew that the project would have to be financed by a mortgage loan for a sum approximating the contract price, and allegedly assured the mortgagee that the work could be done for the amount of the prebid figure, plus 5 per cent. The court decided that the contractor debarred himself from claiming priority for his mechanic's lien claim against the mortgaged property, over the mortgage, as to any excess of his claim above the prebid figure.

Pipeline not dredge part

THE PROBLEM: A hydraulic dredge, assisted by tugs and barges, was engaged in widening and deepening a ship channel. Connected with the dredge was a spoil discharge pipeline extending to a shore disposal area. A poorly navigated vessel struck and damaged the pipeline. Was the vessel owner entitled to indemnity against liability under an insurance policy,

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General Contractors
Orlando, Florida
July 20, 1956

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Frank M. Hubbard, President

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MOTOR GRADERS · ROLLERS



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which covered "liability for damage to . . . any fixed object or property whatsoever, except another vessel or craft or property on another vessel or craft?"

THE ANSWER: Yes. (Trinidad Corporation v. American Steamship Owners Mutual Protection and Indemnity Association, 130 Fed. Supp. 46, decided by the United States District Court, Southern District of New York.)

The attorneys for the insurance association did not claim that the pipeline was itself a "vessel", but unsuccessfully argued that it must be regarded as part of the dredge, which, admittedly, was a vessel within the meaning of the policy. The court said: "The pipeline here did not move with the dredge in the same sense as its hull or anchor. The pipeline and pontoons, once having been towed to the location of the dredging work by the attending tugs, were placed in position and assembled by the tugs and the derrick barges. Once the connection with the dredge was established, both the dredge and the pipeline were required to remain at anchor at an established location for the purpose of permitting the pumping operations to be performed."

Gravel pit extension under zoning ordinance

THE PROBLEM: Before a village zoning ordinance was adopted, a gravel pit was 175x150 feet and 6 feet deep. The gravel was removed by power shovel and rock screen. The ordinance forbade acquiring additional land for gravel pit purposes, but permitted the gravel-removal operations "to occupy a greater area of land than that occupied" when the ordinance was adopted. Did the owner have a right to enlarge the pit to 240x210 feet and 8½ feet deep, and to install a rock crusher to aid in removing the gravel?

THE ANSWER: Yes. (Hawkins v. Talbot, 80 N. W. 2d 863, decided by the Minnesota Supreme Court.)

The court also said the right to so extend operations was not defeated by a change of ownership of the premises. The evidence did not show that the pit was a nuisance to the owners of nearby homes, because of dust and noise resulting from the operations. (Of course, permissible operation of such a plant in a zoned area would not relieve the owners from liability for unreasonably creating dust and noise.)

Site encroached on street

THE PROBLEM: A contractor constructed a building on the site shown by plans prepared by the owner's own representative. The contractor had no reason to suppose that the site encroached upon space dedicated as an abutting public street. Was the owner entitled to a deduction from the contract price on the ground that the contractor was at fault?

THE ANSWER: No. (Wilson v. Keefe, 309 Pac. 2d 516, decided by the California District Court of Appeal, Second District, Los Angeles.)

Dual use of tools

THE PROBLEM: A District of Columbia statute provides that no person shall have in his possession "any instrument, tool, or other implement for picking locks or pockets, or that is usually employed, or reasonably may be employed in committing any crime, if he is unable to account satisfactorily for possessing the implement". If police officers catch a contractor or his employee with a bag in his car containing a sledge hammer, an ax, two wrecking bars, a hacksaw with several blades, a length of knotted rope, a brace, and a bit, could the contractor be required to prove that he did not intend to use these things in a criminal enterprise?

THE ANSWER: No. (Benton v.

United States, 232 Fed. 2d 341, decided by the United States Court of Appeals, District of Columbia.)

The case in this instance did not specifically involve a contractor. Such a statute existed in the District and Benton was convicted under it. The court, on appeal, set the conviction aside declaring that the statute was unconstitutional in attempting to require a possessor of tools, usable for lawful as well as unlawful purposes, to prove that they were in his possession for lawful use.

Labor union business agent was invitee

THE PROBLEM: A labor dispute existed between a subcontractor and his employees on a building job. In an ef-

fort to settle the dispute a business agent of the employees' union climbed a ladder to the roof of the building to confer with a representative of the subcontractor and some of the employees. When he was descending the ladder, a rung broke and the business agent was injured. The subcontractor had permitted the ladder to become and remain in defective condition. Should the injured man be regarded as a business visitor to whom the subcontractor was obligated to use reasonable care to guard against such an accident?

THE ANSWER: Yes. (Coia v. Eastern Concrete Products Co., 127 Atl. 2d 858, decided by the Rhode Island Supreme Court.)

School's in—drive carefully.

Jack of all Jobs

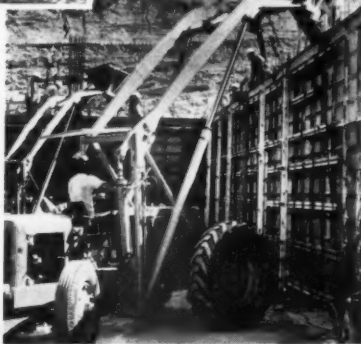
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1. Long six foot reach
2. 3000 lb. capacity
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Pavement stripped on the Housatonic River Bridge and bleeder plates attached to the steel grid, welders with Hobart machines fasten steel reinforcing fabric to steel spacer bars that will push the mesh up into the new bituminous pavement. At right, paving is handled by a Barber-Greene finisher and Galion 10-ton roller.

Fabric-in-asphalt laid to resurface bridge

For more facts on insert, circle No. 253-



CHEWING UP TOUGH TACONITE AT 3500 TONS PER HOUR!

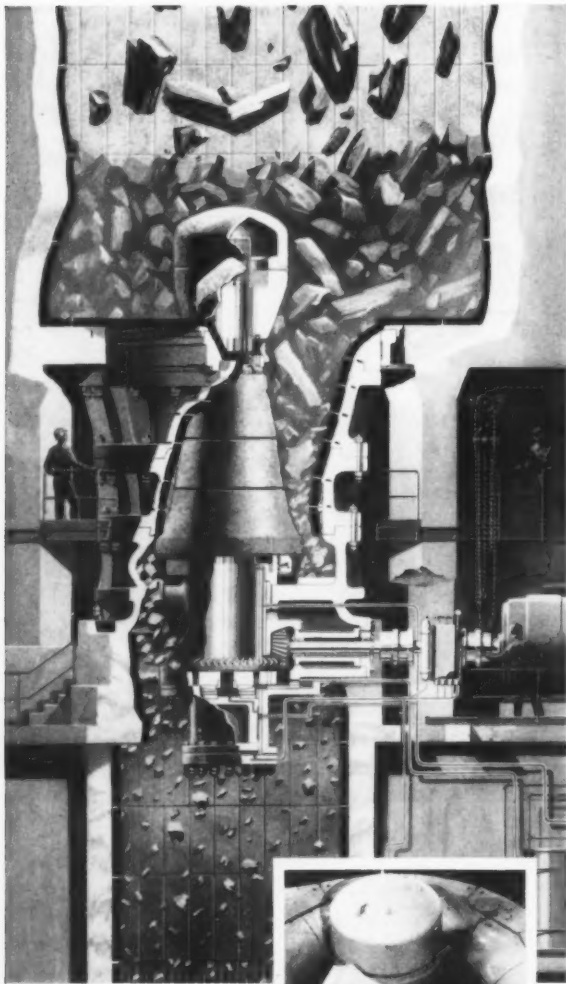


Illustration above by courtesy of Socony Mobil Oil Co., Inc.

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Iron-bearing taconite rock is so hard it can't be drilled by ordinary methods. Yet chunks up to 5 feet in size can be fed into this giant crusher and chewed up into 10-inch pieces—at the rate of 3500 tons per hour.

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This 625-ton giant, built by Allis-Chalmers, is the world's largest crusher. It's helping provide America's steel industry with a dependable new source of iron ore—both now and for years to come.

Here's one more example of the ability of Amsco Manganese Steel to stand up under the toughest impact and abrasion conditions. Consult your equipment manufacturer, or write us direct, for technical information on the long-wearing properties of Amsco Manganese Steel—for crushing, digging or hauling applications.



Mantle and concaves (shaded portions) in this rock-crushing giant are cast of Amsco Manganese Steel. Mantle weighs approximately 40,000 lbs.—the concaves, or side plates, approximately 71,000 lbs.



AMSCO

American Manganese Steel Division • Chicago Heights, Ill.

OTHER PLANTS IN: DENVER, LOS ANGELES, NEW CASTLE, DEL., OAKLAND, CAL., ST. LOUIS, JOLIETTE, QUEBEC
For more facts, use Request Card at page 18 and circle No. 252

The heavy volume of weekend traffic on the Housatonic River Bridge, which joins the Merritt Parkway to Wilbur Cross Parkway in Connecticut, forced a 1,906-foot-long resurfacing job to be broken up into sections that could be started and completed during a week.

The contractor, Leverty & Hurley Co., and the subcontractor, DeFonce Construction Co., both of Bridgeport, Conn., could not begin work before 7 p. m. on Monday and all lanes had to be completely free of obstruction by 3 p. m. Thursday.

This job on the New York-New England artery called for a resurfacing with a specially designed deck combination of heavy steel "bleeder" plates capped with welded-wire fabric-reinforced asphaltic concrete. This is expected to eliminate frequent patching of the old bituminous pavement, backed up by metal lath. This original pavement was stripped from the bridge.

Attach bleeder plate

The 1x3-foot, 14-gage steel bleeder plates contained 72 punched holes to allow for condensation. The plates, furnished by the state, had to be perforated by the contractor, painted on both sides with Bitumastic Koppers No. 50, and secured to the underlying grid by 4-inch-long welds on 5-inch centers across the lane width.

Next, 3/8-inch-square spacer bars were placed longitudinally along the lanes, on 2-foot centers, with extra bars placed where the paver's tracks were to travel. The spacer bars, tack welded to the perforated plates every 12 inches on a staggered pattern, raised the welded-wire reinforcing fabric up into the asphaltic concrete to stabilize the mix.

The 11 1/2-foot-wide, 8-foot-long steel fabric was welded to the spacer bars at 6-inch intervals, and the ends of all transverse wires were tacked to the 14-gage plate on both curb sides.

After this operation was completed, paving usually began by Wednesday night or Thursday morning. A Barber-Greene finisher laid both base and surface courses, consisting of dense graded bituminous concrete with synthetic rubber additive. A Galion 10-ton tandem roller compacted both the base and surface courses. **THE END**

CONTRACTORS AND ENGINEERS

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Now—for the first time in truck history—one make leads the low-priced three *all four ways!* And that make is DODGE—all new for 1958!

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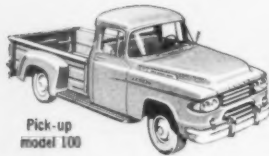
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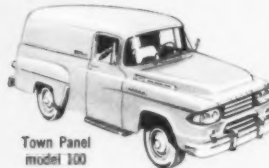
Low-tonnage models

Medium-tonnage models

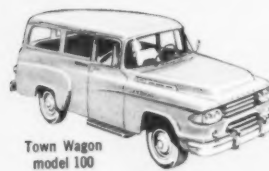
Heavy-duty models



Pick-up
model 100



Town Panel
model 100



Town Wagon
model 100



Forward-Control
model P300



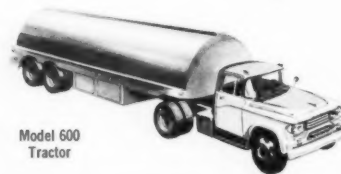
Model 400
Van Body



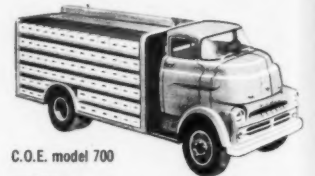
Model 500—Stake



Four-Wheel-Drive
W500
Chassis



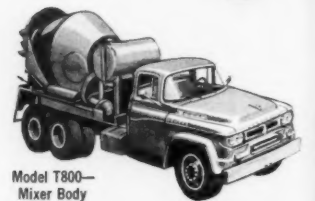
Model 600
Tractor



C.O.E. model 700



Model 900—
Tractor



Model T800—
Mixer Body



Model T900—
Dump Body

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CONVENTIONAL MODELS

G.V.W. Range
4,250 lbs. to 9,000 lbs.
Engines
120-hp. 6-cylinder
204-hp. V-8

4-WHEEL-DRIVE MODELS

G.V.W. Range
5,100 lbs. to 10,000 lbs.
Engines
113- 120- 125-hp. 6-cyl.
204-hp. V-8
204-hp. V-8 (Heavy-Duty)

FORWARD-CONTROL MODELS

G.V.W. Range
6,000 lbs. to 9,000 lbs.
Engines
120-hp. 6-cylinder
204-hp. V-8

CONVENTIONAL MODELS

G.V.W. Range—11,000 lbs. to 22,000 lbs.
Engines—125- 130- 141-hp. 6-cyl.
204- (H.D.) 207-hp. V-8's

C.O.E. MODELS

G.V.W. Range—15,000 lbs. to 22,000 lbs.
Engines—204- (H.D.) 207- 218-hp. V-8's

4-WHEEL-DRIVE MODELS

G.V.W. Range—15,000 lbs. to 20,000 lbs.
Engines—130-hp. 6-cylinder
204- (H.D.) 207-hp. V-8's

SCHOOL BUS MODELS

G.V.W. Range—10,500 lbs. to 22,000 lbs.
Engines—125- 130- 141-hp. 6-cyls.
204- (H.D.) 207-hp. V-8's

FORWARD-CONTROL MODELS

G.V.W. Range—7,500 lbs. to 15,000 lbs.
Engines—120-hp. 6-cylinder
204-hp. V-8

CONVENTIONAL MODELS

G.V.W. Range
18,500 lbs. to 30,000 lbs.
Engines
218- 224- 234-hp. V-8's

C.O.E. MODELS

G.V.W. Range
18,500 lbs. to 25,000 lbs.
Engines
218-hp. V-8

TANDEM MODELS

G.V.W. Range
26,000 lbs. to 46,000 lbs.
Engines
218- 224- 234-hp. V-8's

SCHOOL BUS MODELS

G.V.W. Range
17,500 to 23,000 lbs.
Engines
218-hp. V-8

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NOVEM

Contractor solves drilling problem in rewiring government building

When Sachs Electric Corp., St. Louis, Mo., started rewiring conduit feeders for the St. Louis Area Support Center, it was faced with the problem of cutting 150 holes through 10-inch reinforced-concrete floors. The 25-year-old government-owned building, formerly a merchandising center, will house all U. S. Defense agencies in the St. Louis area when the remodeling job is done. It is built of Meramec gravel—the next thing to flint. Cutting holes manually through this concrete meant jagged, uneven holes for conduits and service lines, and days of time and labor.

Sachs Electric used a Truco diamond-studded drill, a 110-volt portable machine designed for one-man operation. The drill was equipped with a telescoping post that anchored it firmly between the floor and ceiling. Drilling was simply a matter of advancing a motor carriage along a transverse bar.

Operators could drill a clean, smooth 3½-inch hole through the 10-inch concrete floor in six to nine minutes—the time depending on whether or not reinforcing bars or conduits had to be cut. It had formerly taken two men six hours to drill the same size hole. Hammering and chiseling were eliminated, there was no breakout around the edges, and no big cleanup job.

But there was one drawback. Each time the drill was moved to a new location, time was spent looking for a water supply. When the water was located—sometimes on a different floor—hoses had to be connected. Doyle Hall, Sachs' general foreman, came up with a more efficient method.

Hall rigged up a re-circulating water tank from a standard 54-gallon oil drum, a galvanized bucket, pipe, and 10 feet of garden hose. The Hall-designed re-circulating tank and the drill, ladder, and needed equipment could be moved from place to place on a small 30×60-inch portable platform truck.

Financing subsidiary formed by J. I. Case

A new and wholly owned financing subsidiary, the J. I. Case Credit Corp., has been formed with headquarters in Racine, Wis., home of J. I. Case Co., the parent firm.

Heading the financing subsidiary is John D. Grayson, who was vice president and treasurer of the American Tractor Corp., until that firm merged with J. I. Case in January. The secretary and treasurer is C. M. McCumsey.

The new corporation will handle both dealer floor-plan and retail paper of its construction machinery division, supplementing the function of local banks.

Sachs Electric Corp.'s drill operator Ray Grewe, standing, and Doyle Hall, general foreman, test the re-circulating water tank that was moved wherever needed. Sachs Electric has the job of rewiring conduit feeders for the St. Louis Area Support Center.



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Engineering design and performance characteristics, necessary to insure dependable load bearing ability, are inherent in every Laclede open web Steel Joist because they're manufactured under the rigid Quality Verification Program of the Steel Joist Institute.



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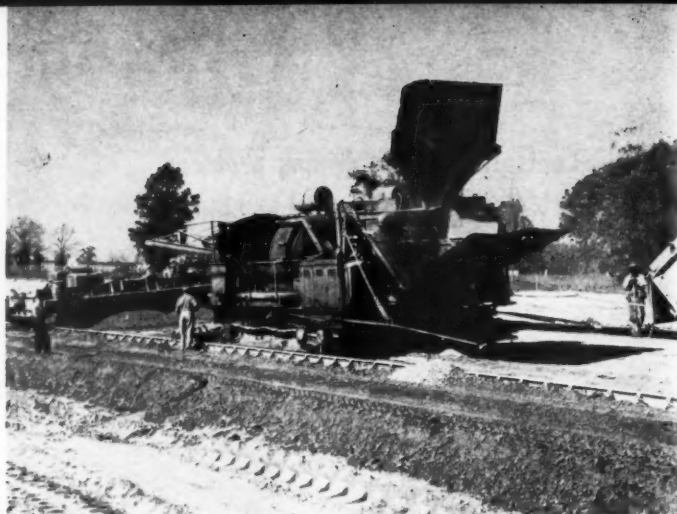
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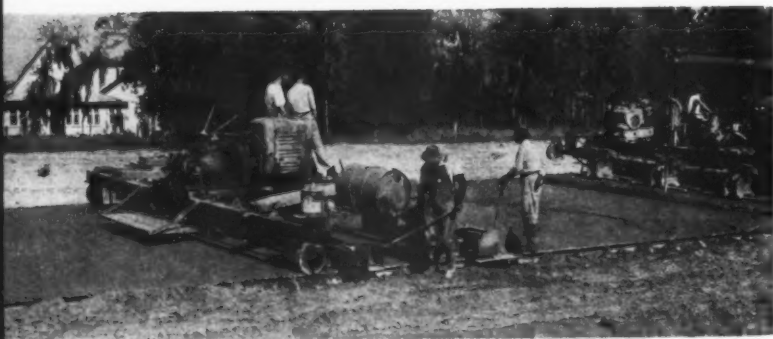
Write for your copies of the latest Steel Joist Institute literature—"Bridging Report" and Quality Verification Program.

Contractor tries new ideas in paving, curing, sawing

Auxiliary tank on water truck increases storage capacity of pavers; modified spraying machine and special sawing rigs expedite the work



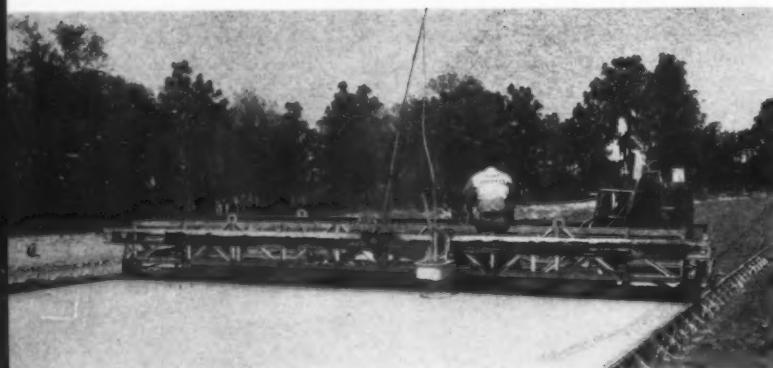
Two Koehring 34-E pavers ride between Blaw-Knox 9-inch forms as they dump concrete in front of the B-K spreader.



A Blaw-Knox double-screed transverse finisher follows the B-K spreader. This rig has a rear platform that is used by the workman who drives transverse bars along the center line of the roadway.



A Koehring longitudinal float trails the finishing machine, smoothing out the transverse ridges and irregularities left when the transverse bars were driven. Hand-finishing with straightedges leaves the slab ready for curing.



This Heltzel Flex-Plane rig, spraying Hunt curing compound on the slab, has been modified for this job. Boom, counterweight, and swivel connection were removed; then the boom was reattached by a heavy-duty coil spring.



An electrically operated Seals, Inc. span-saw, riding on the forms, cuts transverse joints in the slab with two Carborundum abrasive blades.

by ANTHONY N. MAVROUDIS

field editor

A completely mechanized paving spread, used from stake driving to joint forming, enabled a contractor to place up to 800 batches of concrete per 8-hour day on a 4.6-mile section of the Federal Interstate System between Tampa and Orlando, Fla. Noteworthy on the job were the way water was continually supplied to the fast-moving pavers, and the modification of a spraying machine used in curing.

Ballenger Paving Co., Greenville, S. C., was the contractor on this section, which is on an entirely new location. Running west of Lakeland and parallel to U. S. 92, the road was designed with ramps making connections to existing roadways on each end. When the main roadway is extended between Tampa and Orlando, these ramps will be made into interchange ramps.

Use two pavers

On this \$1,433,956 contract, Ballenger used two Koehring 34-E pavers to place concrete for the two 24-foot unreinforced, divided roadways. Each



A newly developed Nelson hydraulic pin puller is being used to remove form stakes from the B-K forms. The rig rides on the forms and is moved along by cranking.

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NOVEM

The machines stay close together during paving operations. Following the two Koehring pavers are the Blaw-Knox spreader, the B-K finishing machine, and the Koehring longitudinal finisher.



roadway was paved in 24-foot widths, allowing both pavers to ride between the 9-inch Blaw-Knox forms and ahead of the paving train. A good part of the paving was done from the shoulders, one paver running forward, while the other kept backing up.

When the form trench had been shaped by a Cleveland form tamper, pneumatic hammers, powered by a self-propelled Le Roi Tractair, drove the form stakes to position the forms in the trench. The footage of forms used ahead of the pavers varied from 500 to 2,000 feet, according to the anticipated daily run. The subgrade between the forms was built up 1 inch to obtain the 8-inch slab thickness between the 9-inch forms.

After a Caterpillar No. 12 motor grader fine-graded the subgrade, a Michigan 175 front-end loader pulled a 24-foot-wide grade planer between the forms to obtain the desired finish grade. Between the Michigan and the two pavers, a Ferguson 50-ton pneumatic roller achieved final compaction of the subgrade.

The method of supplying water continually to the two fast-moving Koehring pavers was one that is not frequently seen and one that worked extremely well. Two 1,200-gallon-capacity water trucks, equipped with spray bars and used for dust control, also had a third 900-gallon portable auxiliary tank. This surge tank was connected to each of the 600-gallon water storage tanks on the pavers. The 1,200-gallon water trucks had to pump water through the surge tank to fill the paver tanks. Once both 600-gallon water tanks on the pavers had been filled, the water being pumped was automatically diverted into the surge tank for additional storage.

When one of the 1,200-gallon trucks emptied, it was disconnected from the surge tank to return to the water supply and be refilled. By the time it had taken on water and returned to the surge tank, the second water truck was almost empty and ready to disconnect.

The surge tank actually increased the water-storage capacity of both

(Continued on next page)



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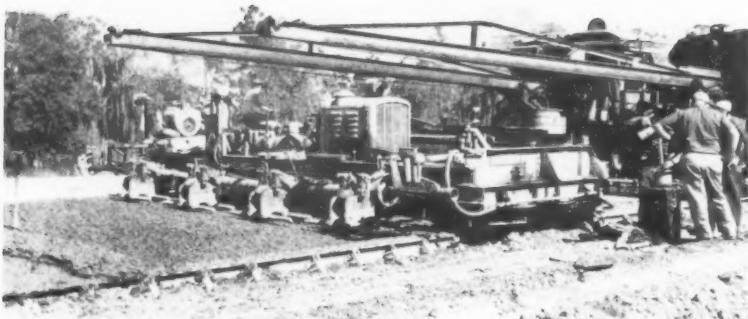
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Bendix Radio Division

Baltimore 4, Maryland



For more facts, use coupon, or Request Card at page 18 and circle No. 255



Just behind the pavers, the Blaw-Knox spreader strikes off the concrete. It carries four Jackson internal vibrators, which are being pulled along through the concrete.



NEW 1958 CHEVROLET TRUCKS WITH NEW HUSTLE! NEW MUSCLE! NEW STYLE!

*Just look at all they offer
that's new and better... and
you'll see why these new Chevies
are the fleetest, sturdiest,
handsomest dollar-savers yet!
Meet Chevrolet for '58!*

NEW LIGHT-DUTY APACHES

Thrifty Apaches offer three new Step-Vans complete with walk-in bodies. With high-capacity panels, pickups and four-wheel drive models, this expanded light-duty lineup has a dollar-saving answer to your delivery chores.

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Hardy Vikings roll in with nine brand-new models, offering new cab-to-rear-axle dimensions for improved semi-trailer, dump, stake and van-type operations. Options available boost GVW ratings all the way to 21,000 lbs.

FAMOUS 6's OR SHORT-STROKE V8's

The engine lineup is full of new pep and power—whether you choose a 6 famous for economy or a high-compression V8. Look over Task-Force 58 at your Chevrolet dealer's. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.



SEE THE LATEST EDITIONS OF THE "BIG WHEEL" IN TRUCKS—1958 CHEVROLET TASK-FORCE TRUCKS

For more facts, use Request Card at page 18 and circle No. 256

(Continued from preceding page)

pavers by 900 gallons. The water in the surge tank formed a reserve, to be used by the pavers, providing ample time for the 1,200-gallon water trucks to disconnect, haul to the water point, refill, and return to the surge tank. The pavers never had to shut down because of a lack of water in their tanks.

Paving spread

Following the two pavers, which pulled a 24-foot-wide Cleveland Trail-grader, was a Blaw-Knox spreader. This was equipped with four rear-mounted Jackson internal vibrators which were pulled through the 8-inch-thick concrete slab.

Next followed a Blaw-Knox double-screed transverse finishing machine on which a rear platform was attached. This was used by a workman driving the 30-inch-long, 1/4-inch-diameter deformed transverse bars along the center line of the 24-foot lane. The bars, driven to a 4-inch depth, were spaced on 30-inch centers measured along the roadway center line.

This operation was trailed by a Koehring longitudinal float that smoothed the surface of the slab, removing ridges left by the transverse finishing machine and the irregularities formed when the transverse bars were driven.

This surface was hand-finished by two men with Heltzel aluminum straightedges. Then the hand-finishing operation was followed by two men pulling a 10-inch-wide rubber belt back and forth over the slab surface. This belt was attached to a bow frame supported by the forms. The bow-frame also pulled a burlap drag to impart a rough texture to the heringbone effect formed by the rubber belt.

A Heltzel spray machine, operated by Hunt Process Corp. for the contractor, followed the hand-finishing operations, spraying Hunt Process white-pigmented curing compound across the concrete slab. The Heltzel Flex-Plane spray machine, powered by a Wisconsin engine, supported a small Quincy air compressor which supplied air for the drums of curing compound.

Machine modified

A smoother spraying operation was achieved by the modification of the swinging boom of the Flex-Plane rig, which ordinarily has a counterweight at its lower end and is attached to the machine by a swivel connection. The boom, counterweight, and swivel connection were removed from the rig and the counterweight and swivel connection discarded. The boom was re-attached to the machine by a heavy-duty coil spring.

According to the Hunt Process Corp. personnel on the project, the coil-spring attachment kept the spray hose tight at all times and prolonged its useful life. The new attachment also eliminated the erratic, jerky movements of the boom, caused by the shifting of the counterweight when the boom swung back and forth.

CONTRACTORS AND ENGINEERS



Where the slab is less than 24 feet wide, a Felker portable saw is used to cut the transverse and longitudinal joints. The Consolidated 12-inch-diameter diamond blade is cooled by water supplied from a water tank on the diesel generator truck.

Hunt Process men observed that the jerky motion of the boom, setting up variable stresses in the spray hose, tended to wear the hose out faster.

Joint sawing

Transverse and longitudinal joints were sawed about seven hours after concrete pouring. This job was handled by an electrically operated span-saw riding the concrete forms. The work was done for the contractor by Seals, Inc., Baltimore, Md., an organization specializing in concrete sawing and joint sealing. This company not only handles this specialized work for contractors, but also designs, develops, and builds its own machines. Up to a few months ago, these time and field-tested machines could not be purchased; now an affiliate company has been organized to make the sawing and joint-sealing machines available to contractors.

The span-saw, powered by a diesel generator mounted on a truck, was equipped with two water-cooled transverse blades. One blade was located near the forms and the other near the roadway center line. When transverse joint sawing began, both blades moved across the slab in the same direction and at a uniform speed. This was controlled by the machine operator, who turned a steering-type wheel located at either end of the machine. Water was supplied to the Carborundum 14-inch-diameter abrasive blades from a water tank that was also mounted on the diesel-generator truck.

The 2-inch-deep transverse joints were spaced on 20-foot centers. Once a joint had been cut and the span-saw was ready to move forward to the next location, a trail-saw was attached to the rear of the machine. Attached at the exact center of the span-saw, this trail-saw was pulled along as the machine moved from transverse joint to transverse joint. The trail-saw had three blades working in tandem to cut the 2-inch longitudinal joint as it was pulled along behind the span-saw.

The three blades cut the joint progressively: the lead blade cut a $\frac{3}{4}$ -inch slot; the second cut an additional $\frac{3}{4}$ inch; and the last blade cut $\frac{1}{2}$ inch to reach the full 2-inch depth. This progressive cutting allowed the span-saw to move forward rapidly as the longitudinal joint was being formed. The 14-inch-diameter, water-

cooled Carborundum abrasive blades were also used by the attachment.

Seals, Inc., used a portable Felker concrete-sawing machine, equipped with a Consolidated 12-inch-diameter diamond blade to cut the transverse and longitudinal joints on slabs less than 24 feet wide. This portable rig, powered by a Wisconsin gasoline engine, was used 8 hours after the concrete had been poured. Blades had to be changed after 4,000 linear feet of concrete were sawed. Water to cool the blade was also supplied by the water tank on the diesel generator truck. Joints were later sealed with an asphaltic filler placed by a Seals, Inc., joint-sealing machine.

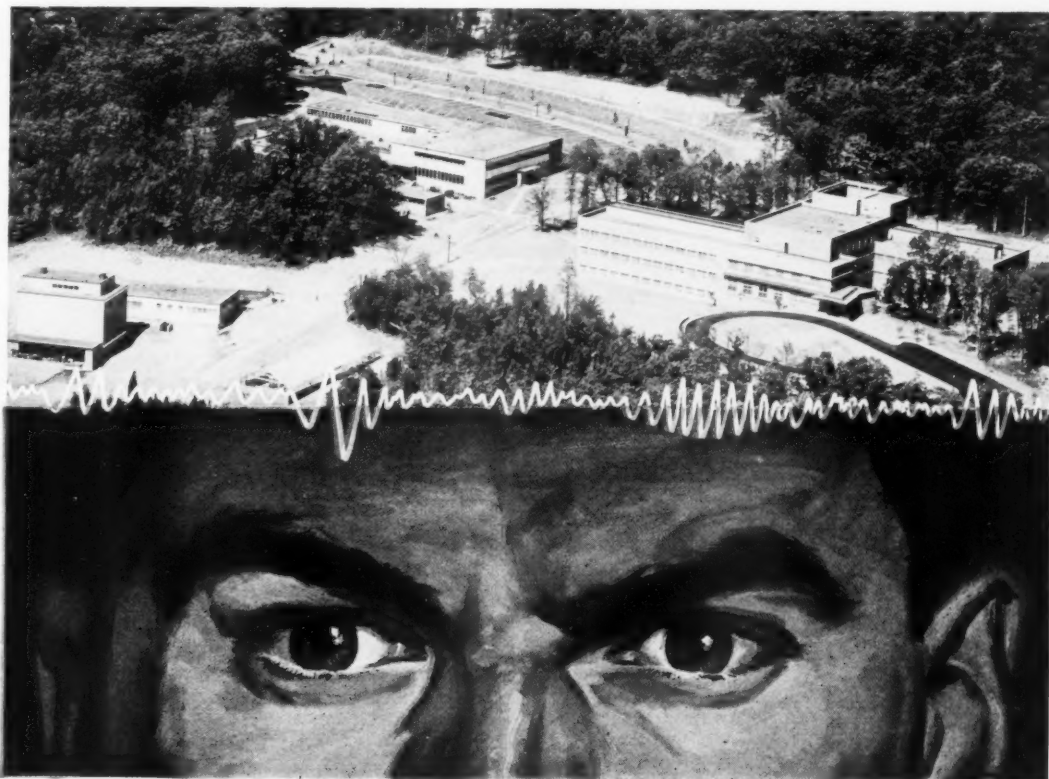
Use pin puller

Forms were stripped 24 hours after

concrete had been poured. The form stakes were removed with a newly developed Nelson hydraulic pin puller. This portable rig, supported by the outside form and the concrete slab, was manually cranked along the outside edge of the slab to pry up the form stakes. The pin puller, according to the contractor, is about twice as powerful as the air-operated pin pullers. As the pins were removed, the forms, loaded manually onto a trailer truck, were hauled ahead of the paving spread to be re-positioned.

Batch plant

Ballenger used a Blaw-Knox concrete plant, located at a railroad siding near the eastern end of the project, to supply the concrete mix to the pavers. The plant consisted of a 100-



Here, creative minds will shape the future

Yes, here in the new Research Center of United States Rubber Company the probing minds of chemists and other scientists will find the ideal environment for conceiving new ideas... the finest facilities for bringing them into reality. Located on a 100-acre tract in suburban Wayne Township, New Jersey, the Center is a concrete symbol of the basic importance of Research in this company's past, present and future.

Significantly, at least 25 of U. S. Rubber's major product lines have been developed within the past twelve years.

As the Chemical Division of U. S. Rubber, Naugatuck Chemical continues to contribute a generous portion of new and improved products... such as

Surfa-Sealz®, the specially-prepared rubber additive for lengthening service life of asphalt paving.

Such developments stem not only from our research laboratories at Naugatuck, but also from Naugatuck's agricultural research facilities at Bethany, Connecticut, and the laboratories of our Canadian affiliates, Naugatuck Chemicals and Dominion Rubber Company, Ltd. Now, Naugatuck's research will be substantially augmented—and perhaps channeled in radically new directions—by the more fundamental research carried on at the new Research Center.

In the future, even more than in the past, look for the name Naugatuck to identify the newest and the finest products in their respective fields!



United States Rubber

Naugatuck Chemical Division, NAUGATUCK, CONNECTICUT

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BRANCHES: Akron • Boston • Gastonia, N. C. • Chicago • Los Angeles • Memphis • New York • Philadelphia • CANADA: Latex Div., Dominion Rubber Co., Ltd., Montreal • CABLE: Rubexport, N. Y.
For more facts, use Request Card at page 18 and circle No. 257



Stone and sand, delivered by rail, is stockpiled on either side of the Blaw-Knox 100-ton, 3-compartment aggregate bin. Two cranes charge the bin with aggregate from either stockpiles or the rail cars.

ton, 3-compartment aggregate bin. No. 4 to 1½-inch stone was stored in two compartments, sand in the third. Stone and sand were shipped to the plant side in rail cars that used a rail spur running alongside the aggregate bin and cement silo.

Stone and sand were unloaded from the cars and stockpiled on either side of the aggregate bin by two cranes with Owen and Hendrix 1-yard re-handling buckets. These cranes also charged the aggregate bin from either the rail cars or stockpiles.

The 4-batch-capacity batch trucks stopped first at the drive-through-type aggregate bin to receive 2,800 pounds of stone and 1,600 pounds of sand per batch. The weights of the

two ingredients were measured by a beam scale, and the batches were released manually.



The Blaw-Knox 400-barrel cement silo has semiautomatic controls for charging twin batches simultaneously. Rail cars delivering cement dump to an under-track hopper feeding the 75-ton-per-hour enclosed elevator.

LOOK TO DAYBROOK

... for a New Standard of Teamwork that Really Pays Off!



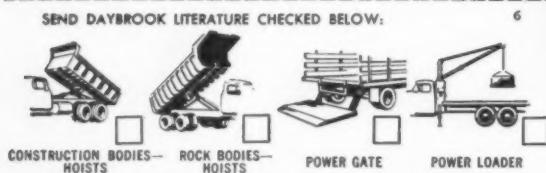
Experienced contracting and excavating operators specify Daybrook Hoists and Bodies for fleets and single units, because they get the NEW STANDARD of teamwork that really pays off!

HERE'S WHY • Daybrook Dump Bodies are a symbol of craftsmanship! Rugged side panels and understructures—improved hardware—a tailgate that is 50% stronger—models with "safety" sloping running boards and horizontal braces—all are benefits for the user. • Daybrook Hoists feature

100% Daybrook design. Exclusive *One-Year Warranty* on the sealed hydraulic cylinder. Conventional arm, direct-lift, and telescopic models available.

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The Blaw-Knox 400-barrel drive-through cement silo was kept full at all times, cement being dumped from rail cars to an under-track hopper feeding a screw conveyor. The screw conveyor fed the Florida portland cement to a 75-ton-per-hour enclosed bucket elevator, which raised the material to the elevated silo. Blaw-Knox semi-automatic pneumatic controls were installed on the silo so that two 729-pound cement batches could be charged to the batch trucks simultaneously. Hunt Airin air-entraining agent was added to the concrete batch at the paver's skip to obtain a 4 to 5 per cent air content in the concrete mix. About 43 gallons of water were added to each batch at the pavers.

Personnel

J. R. Chanlee, Jr., was the general superintendent; Robert S. Woodlief, the superintendent; and Charles M. Weeks, the engineer, for the Ballenger Paving Co. Wallace M. Wright was the resident engineer and Marty Redding, the project engineer, for the Florida State Road Department.

THE END

Rockwell buys German gasoline, diesel engines

Rockwell Mfg. Co., Pittsburgh, Pa., has acquired Ilo-Werke, G. m. b. H., Pinneburg, West Germany, manufacturer of 2-cycle, air-cooled diesel and gasoline engines. The engines are used in industrial applications for power for construction machinery, concrete mixers, and air compressors.

The German company also has a plant at Munich, and the two provide a total of approximately 215,000 square feet of manufacturing space. Ilo-Werke management, headed by Heinrich Christiansen as president, will remain the same.

CONTRACTORS AND ENGINEERS



The main research building, one of four such structures that comprise the new research center of United States Rubber Co., at Wayne Township, N. J. This building, which has a 114,000-square-foot area, houses 48 unit laboratories as well as special laboratories.

New products unveiled at new U. S. Rubber center

The United States Rubber Co., New York, N. Y., has opened a new research center in Wayne Township, N. J., five miles from Paterson, N. J. Located on a 99-acre tract, the center has four main buildings, a power house, and a waste treatment plant. The main research building is of 3-story brick construction with a total area of 114,100 square feet. The 2-story engineering research building contains a 45,240-square foot area; the chemical engineering building has 13,790 square feet of area; and a 5,040-square-foot greenhouse has 300 rubber trees, to be used for experiments aimed at increasing the yield of natural rubber trees grown on company plantations in Malaya and Sumatra.

At the time the plant was dedicated, U. S. Rubber unveiled several experimental products. One of these is a new rubber, HTB, that can withstand sustained temperatures of 400 degrees F and a peak of over 700 degrees F for a short time. The butyl rubber compound will be used in the production of conveyor belts for handling hot materials such as sand, scrap metal, and limestone.

Also unveiled was a giant rubber-fabric liquid container that looks like an overgrown toothpaste tube. The 56-inch-diameter, 35-foot-long container, called the Sealtank, makes possible a two-way haul—transporting dry cargo in one direction and a liquid cargo in the same trailer or truck on its return trip. When the container is empty, it lies flat and can be rolled up into a compact, cylindrical package 25 inches in diameter and 7 feet 4 inches long.

Placed empty on a trailer truck, it can be filled through a fitting at one end or from the top; atmospheric pressure collapses the tank as it is emptied. Currently in production is a 3,800-gallon container, and plans are being made to manufacture 6,500, 10,000 and 20,000-gallon sizes.

A plastic pipe for carrying natural gas, salt water, chemicals, and hot water has also been unveiled. Called Kralastic HTH, the new material combines synthetic rubber with plastic and, according to laboratory tests, has considerable strength at 220 degrees F. When the pipe is being installed, it can be joined with sleeve-type fittings and solvent cement.

Route numbering plan for interstate system

The American Association of State Highway Officials has formulated a plan for numbering routes on the interstate system. A maximum of only two numbers will be used in the numbering system, except where it is desirable to add the suffix N, E, S, or W to properly mark a route. There will be no interstate route bearing the same number as a U. S. number route in any state. Even-number routes will run east and west, odd numbers, north and south.

The AASHO has also designated an official route marker. It will be 36 inches in over-all size, with the bor-

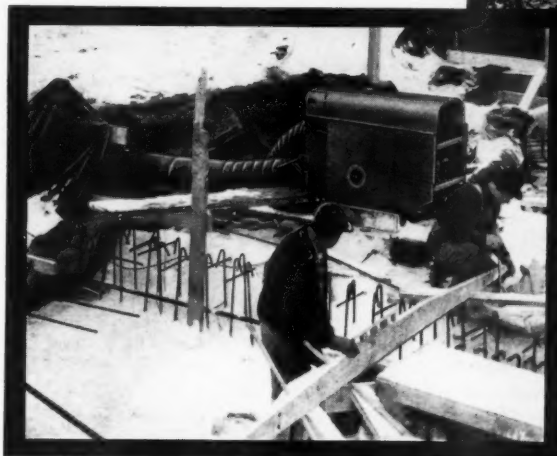
der and legend a reflectorized white. The background will be reflectorized red at the top and reflectorized blue for the bottom. The legend "interstate system", the name of the state, and the route number will be carried on the marker.

A smaller, 24-inch-size interstate shield will be used on intersecting U. S. or state routes or major city arterial streets to indicate an interchange junction or intersection with an interstate route. It is planned to use an 18-inch trail blazer marker to direct traffic in urban areas to the interstate route.

Curing 103,000 yards of concrete for giant Cochrane Dam . . .



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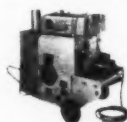
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Whether it's portable heat for concrete pouring at Cochrane Dam—or heat for bridge building, earth-moving projects, highway or industrial construction . . . get *safe* heat from Herman Nelson Portable Heaters! They give you the safety of indirect firing, with smoke and fumes vented away from working area. Efficient combustion gives you more usable

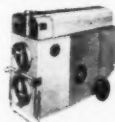
heat, and canvas ducts spot heat right where you need it.

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Interchangeable power plants—gasoline engine or electric motor. Gasoline or oil fired. Up to 425,000 BTU capacity.



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Designed by the Industrial Truck Division, Clark Equipment Co., the Ranger has forks that can be tilted 10 degrees left or right, independent of axles, to keep a load level when crossing the side of a sand dune.



The Army's new rough terrain fork-lift truck, the Ranger, drives through surf on its way to a landing boat during demonstrations at Fort Story, Va.

Army shows amphibious fork-lift truck

A fork-lift truck that "swims", climbs sand dunes, pulls itself out of holes, drives sideways, reaches for its load and then holds the load on an even keel over any terrain has been unveiled by the U. S. Army Quartermaster Corps. Officially designated a rough terrain fork truck, but nicknamed the "Ranger", the machine is designed to move military supplies from landing craft to inland storage points under combat conditions. Other applications include handling materials on beaches, across snow fields, and in similar areas inaccessible to conventional rigs.

Designed to Army specifications by the Industrial Truck Division, Clark Equipment Co., Battle Creek, Mich., the Ranger will operate in five feet of water. With both front and rear-axle steering it can move sideways at a 20-degree angle, and the body and forks can be tilted left or right, independent of the axles, to permit pick-up of loads set at an angle or to carry loads at a level across the hillside.

There is no conventional upright. Forks are extensions of hydraulic telescoping arms which reach out, up, or down to pick up loads. A side-shifting device moves forks 2 feet either side of center to lift off-center loads. Forks also act as a built-in jack. If the front wheels should become mired, forks can be pushed into the ground to lift wheels free while the truck backs off.

Clark Equipment Co. is now manufacturing less spectacular but equally rugged commercial versions of the truck for the construction and mining industries.

Temperatures affecting metals topic of book

"Behavior of Metals at Elevated Temperatures" contains four lectures delivered at last year's Institution of Metallurgists' Refresher Course. The book discusses the engineering properties of metals at high temperatures; the effect of temperatures up to 450 degrees C on metals; nonferrous high-temperature materials; and high-temperature steels. The book abounds in tables, graphs, and formulas.

Published by the Philosophical Library, Inc., 15 E. 40th St., New York 16, N. Y., the book is priced at \$6.

CONTRACTORS AND ENGINEERS

TYPICAL HYDRAPOWER APPLICATIONS

Semi-Integral Models
HPS-52 and HPS-70

Versatile...effortless

► The HPS-type Ross steering gear is a compact, semi-integral assembly that permits easy, space-saving installation with the same type of mounting used with mechanical steering gears.

A hydraulic cylinder, installed in the linkage, supplies the "boost" for fatigueless power steering, without disturbing the quality of "road sense" obtained with the conventional Ross manually-operated gear.

Ross Hydrapower is engineered for easy installation and easy steering—enabling the driver to maintain better control in event of tire failure, soft ground, sand, snow or road obstruction. There is no lag in the hydraulic response either for power assistance or resisting shocks—consequently, no tendency to over control.

Ross makes all three types of hydraulic power steering—integral, semi-integral, and linkage—and invites discussion of any steering problem, power or manual.

Ross

HYDRAPOWER

ROSS GEAR & TOOL COMPANY, INC. • LAFAYETTE, INDIANA
Gemmer Division • Detroit

For more facts, use Request Card at page 18 and circle No. 260

PRODUCT PARADE

For further information on any of the products described in the following section, circle the designated number on the Request Card at page 18.

Blacktop spreader interchanges with loader bucket

A blacktop spreader for use with Payloader Models HU, HH, and HO tractor shovels is offered by the Ram Equipment Co., Inc.

According to the manufacturer, the unit is front-mounted, interchangeable with the bucket, and has a heaped capacity of two yards. It handles either hot or cold mix.

An individual air-cooled 4-cycle gasoline engine powers a vane-type pump to provide hydraulic pressure for the hydraulic-motor auger drive and hydraulic-control cylinders.

The 96-inch maximum spreading width is adjustable from 0 to 48

inches. Thickness of spread may be adjusted from 0 to 6 inches. Adjustments are made by the spreader operator from a comfortable, implement-type seat; conveniently located control levers permit fingertip operation.

The Ram spreader is 8 feet 7 inches wide, 30 inches high, and weighs 1,900 pounds. It is supported by four wheels with 4.00x8 four-ply pneumatic tires.

For further information write to the Ram Equipment Co., Inc., Dept. C&E, 5209 W. Broadway, Minneapolis 22, Minn., or use the Request Card at page 18. Circle No. 147.

Ripper attachment utilizes tractor hydraulic system

A new 7,025-pound heavy-duty rock ripper for use with Eimco front loader or dozer tractors is available from the American Tractor Equipment Corp.

According to the manufacturer, ripper controls on the new unit use the tractor hydraulic system, and do not interfere with loader or dozer operation.

Up to three ripper shanks may be mounted on the head frame. Swivel mounting brackets allow the shanks to swing 30 degrees, permitting easy

steering even while ripping at full depth. A selection of seven types of self-sharpening points is available.

Maximum ripping depth with gooseneck or straight shanks is 24 inches. The over-all width of the head frame is 102 inches, and there is a 43-inch distance between shanks.

For further information write to the American Tractor Equipment Corp., Dept. C&E, 9131 San Leandro Blvd., Oakland 3, Calif., or use the Request Card at page 18. Circle No. 149.



New front-end loader features special foot control

The first model of its new line of rubber-tire front-end loaders is announced by The Thew Shovel Co.

Designated Moto-Loader Model ML-153, the new machine is a four-wheel-drive, 1 1/4-yard-capacity unit, available with either a Continental M-330 gasoline engine or a Cummins JF-6-BI diesel.

The ML-153 uses an Allison Torque-matic 3-speed, power-shifted, full reversing transmission and integral torque converter with a 2.5 to 1 ratio. Top speed of the unit is 21.4 mph.

According to the manufacturer, travel direction selection and throttle control on the Moto-Loader are accomplished with two foot pedals.

The machine has a maximum lifting capacity of 11,000 pounds at 0 mph, and a 6,000-pound carrying capacity at 4 mph. The bucket rollback at carry position is 40 degrees.

For further information write to The Thew Shovel Co., Dept. C&E, 28th & Fulton Road, Lorain, Ohio, or use the Request Card at page 18. Circle No. 148.





Ideal for breaking up frozen ground, shale, and rock is the claim for the Ransome Model R46 ripper mounted here on the blade of a Caterpillar D6 tractor. The Ransome rippers, in various models with adjustable ripping depth, are available for all bulldozer blades on Caterpillar, Allis-Chalmers, and International tractors. For further information on these rippers, write to **The Ransome Corp.**, Dept. C&E, 2729 Hunting Park Ave., Philadelphia 29, Pa., or use the Request Card at page 18. Circle No. 170.

6 reasons for specifying and using

SERVICISED

membrane forming concrete curing compounds

1. Provide lowest unit of moisture loss
2. Meet official specifications for each particular type
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4. Save time, labor, material
5. Will not cake in the drum
6. Guaranteed uniform quality and results

WHITE PIGMENTED TYPE

Servicised White Pigmented Curing Compound provides a film or membrane capable of reflecting heat. It is widely used in areas where atmospheric temperatures exceed 80°F., and properly applied, will reduce concrete temperatures approximately 15°F. Excessively high temperatures during the early hardening period tend to jeopardize setting of concrete and reduces its final strength. High quality inert pigments added to the basic compound also prevent too thin or uneven coverage, as improper application is readily seen. Used on all U. S. Engineers work.

CLEAR TYPE

Servicised Clear Curing Compounds are available in both Wax-Resin and Resin Base Types. Only pure synthetic resins are used with carefully controlled proportions of oils and waxes, etc., in a petroleum solvent to insure a clear, impermeable membrane. Both types can be supplied with a fugitive dye which materially assists in securing proper coverage, and which disappears after application.

WAX-RESIN BASE. A general purpose compound, usually used on mass concrete, pavements. Has excellent water retention properties, allowing slow curing of the concrete which eliminates checking. Dries rapidly and forms a film of uniform texture.

RESIN BASE. Recommended for buildings, offices, architectural concrete, etc. The pure resins, oils and other ingredients present a clear film which does not materially alter the appearance of concrete and it permits early application of adhesives, paint, etc.

AIR ENTRAINING AGENT

Servicised Air Entraining Agent is a highly active, homogeneous and clear solution. A relatively small quantity produces maximum air dispersion, yet it is not so critical as to create wide fluctuations in the amount of entrained air should slight variations in the amount used occur. It will not settle out in storage or gum the dispenser, and its action is not jeopardized by the presence of Calcium Chloride. Servicised Air Entraining Agent meets all official specifications, comes ready to use and requires no additional ingredients or treatment before being used. Available in 5 gallon and 55 gallon drums.

Write for special circulars on Curing Compounds and Air Entraining Agent

SERVICISED PRODUCTS CORPORATION

6051 WEST 65th STREET • CHICAGO 38, ILLINOIS

For more facts, use Request Card at page 18 and circle No. 261

New shoring system has many advantages

A new shoring system said to sharply reduce erecting and dismantling time is announced by the Brainard Steel Division of the Sharon Steel Corp.

The system reportedly is so flexible that its towers can be built in one-foot steps for buildings, bridge foundations, highway construction, and other heavy-duty concrete shoring purposes.

Its basic parts are a heavy-duty tubular steel frame, a ledger carrier, and an adjustable screw jack. No nuts, bolts, or X-bracings are used. The ledger carriers are designed to allow the entire load to be borne by the leg members, thus assuring an evenly distributed load.

The system features a slip-fit design whereby the leg members of one frame slip into the notched sleeve members of another.

Among other advantages cited for the system are the repeated use of



the frames for new shoring and scaffolding jobs, and their extremely light weight and maneuverability.

For further information write to the Brainard Steel Division, Sharon Steel Corp., Dept. C&E, Sharon, Pa., or use the Request Card at page 18. Circle No. 21.

Need HOSE in a HURRY?

Suction • Water • Steam
Air • Multi-Purpose
Discharge • Pile Driver

Wherever your job is—whenever you need hose—there's a Continental Warehouse nearby stocked to give you any kind of hose you want—when and where you want it.

There's no need to wait for distant shipments—no need to stop the job—no need to lose profits.

Any time you need hose call Continental. You'll like the fast service and dependable quality you get from these warehouses:

ATLANTA 8, Ga. 477 Eighth St., N.E.	INDIANAPOLIS 4, Ind. 309 North Capitol Ave.
BALTIMORE 18, Md. 15 East 21st St.	LOS ANGELES 23, Calif. 3121 East 12th St.
BOSTON (Alls. 34), Mass. 12 Franklin St.	MEMPHIS 3, Tenn. 268 Madison Ave.
CHICAGO 10, Ill. 10 West Hubbard St.	NEW YORK 7, N. Y. 81 Murray St.
CINCINNATI 2, Ohio 49 Central Ave.	PHILADELPHIA 6, Pa. 311 North Randolph St.
CLEVELAND 15, Ohio 2731 Prospect Ave.	SAN FRANCISCO 24, Calif. 1332 Egbert Ave.
DETROIT 27, Mich. 13801 Schoolcraft Ave.	ST. LOUIS 8, Mo. 4018 Olive St.
	SYRACUSE 3, N. Y. 739 Montgomery St.



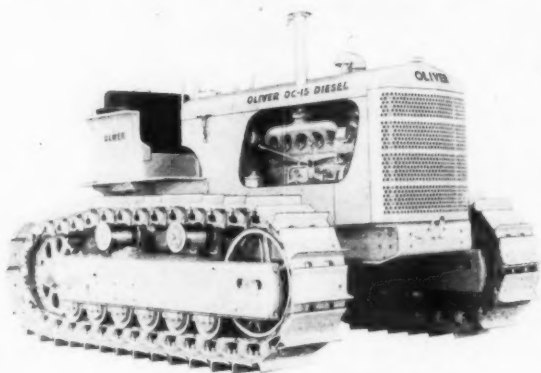
CONTINENTAL DISCHARGE HOSE
Excellent for open end pump work, this hose has durable rubber tube reinforced with four plies of quality fabric. Tough rubber cover withstands rough use and abrasion. Sizes: 1", 1½", 2", 2½", 3", 4". Ask for catalog showing complete line of CONTRACTORS HOSE, HOSE FITTINGS, BOOTS and WATERPROOF CLOTHING.

HOSE by CONTINENTAL

CONTINENTAL RUBBER WORKS • 1989 LIBERTY ST. • ERIE 6 • PENNSYLVANIA

For more facts, use Request Card at page 18 and circle No. 262

CONTRACTORS AND ENGINEERS



The New Model OC-15 crawler tractor is powered by a high-torque, 6-cylinder diesel engine providing a 75-hp pull at the drawbar. Its four forward gear speeds range from 1.67 to 5.60 mph.

New 75-hp crawler unit has wide speed selection

Its new Model OC-15 crawler tractor is announced by The Oliver Corp. According to the manufacturer, the new unit is powered by a high-torque, 6-cylinder diesel engine delivering 75 drawbar horsepower. Four forward gear speeds range from 1.67 to 5.60 mph; reverse gear speeds are 1.99 and 4.48 mph.

Among the many features included in the OC-15 is Oliver's controlled steering differential which provides full power on both tracks at all times.

The new tractor has an operating

weight of approximately 16,960 pounds, and an over-all length of 128 inches. Its track frame is of one-piece, extra-heavy construction. There are six lower and two upper track wheels. With standard 16-inch track shoes, there is a total ground contact area of 2,808 square inches.

The OC-15 is available with a variety of working attachments.

For further information write to The Oliver Corp., Dept. C&E, 400 W. Madison St., Chicago 6, Ill., or use the card at page 18. Circle No. 119.

Device tests concrete by ball penetration

A ball-penetration apparatus, a new instrument for determining the consistency of fresh concrete, is announced by Soiltest, Inc.

The apparatus consists of a cylinder with ball-shaped bottom and a handle weighing 30 pounds. A lightweight metal frame guides the handle and serves as a reference for measuring the depth of penetration.

Fresh concrete may be tested either as placed in forms or in a suitable container. No experience is necessary to operate the instrument, the manufacturer reports.

For further information write to Soiltest, Inc., Dept. C&E, 4711 W. North Ave., Chicago 39, Ill., or use the Request Card at page 18. Circle No. 95.

(Advertisement)



Relatively new design of light-weight steel sheet piling being driven by a McKiernan-Terry No. 3 Double-Acting Pile Hammer on a West Coast sewer project. This type of piling saves costs in many ways when used for trench protection and similar services, and the McKiernan-Terry Hammer is sized precisely for this kind of pile-driving. McKiernan-Terry Corporation, 82A Richards Ave., Dover, N. J.

For more facts, use Request Card at page 18 and circle No. 243

Heavy-media separation plant is easily installed

A new compact heavy-media separation plant is announced by the Eagle Iron Works.

According to the manufacturer, the plant consists of four easily connected units pre-assembled at the factory, providing for easy assembly at the installation site, and readily transported from deposit to deposit.

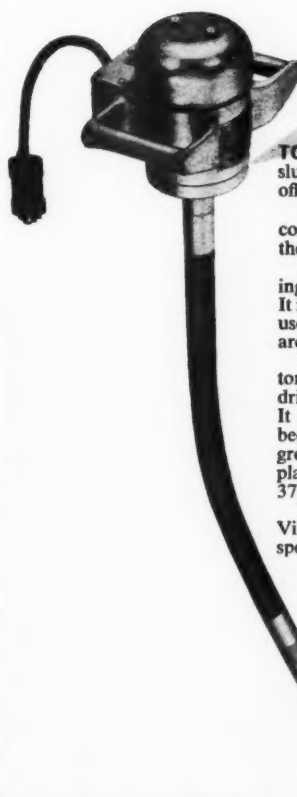
The large productive pool area of the plant's OCC separatory vessel plus constant hydraulically actuated raking mechanism are said to provide maximum separation of matter and high output of recovered aggregate.

Capacity ranges from 25 tons per hour upward, dependent upon the nature of the problem.

Other features of the plant include an improved screw densifier of Eagle design, a highly efficient magnetic separator, a ground level sump which eliminates need for below-ground concrete sump, and a conveniently located control panel on the upper deck.

For further information write to Eagle Iron Works, Dept. C&E, P. O. Box 934, Des Moines, Iowa, or use the Request Card at page 18. Circle No. 90.

Powerful small diameter vibrators for prestressed concrete



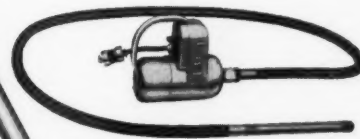
TO SOLVE the problem of consolidating low slump concrete in narrow, constricted areas, Viber offers these powerful, small diameter vibrators.

In addition to outstanding performance, they combine lightweight and compact design, making them remarkably easy for operation by one man.

Model 11A, weighing only 17 pounds, is amazingly effective for a unit of such small diameter. It is ideal for slip-form work and indispensable for use in constricted areas where standard vibrators are impractical.

Model 26, a full-powered small diameter vibrator is available with extended lengths of flexible drive. Head is interchangeable with Model 11A. It is especially popular in prestress manufacture because the small diameter head operates with great effectiveness in constricted, hard-to-reach places. Equipped with 4 feet of drive it weighs 37 pounds.

Tip of vibrator housing is replaceable. Viber's patented rubber tip furnished unless steel specified.



Contact your nearest dealer or write direct for further information and prices.

VIBER COMPANY, 726 South Flower Street,
Burbank 24, California



VIBRATORS

Pioneers and leaders in the manufacture of vibrators.

For more facts, use Request Card at page 18 and circle No. 264



This I-H heavy-duty Model AC-225-D is one of the three new diesel-powered truck-tractors announced by the firm. All three have short bumper to back of cab dimensions—90 inches to rear top of cab, and 91½ inches to farthest point at back of cab.

Three new truck-tractors feature short cab spex

Three new diesel truck-tractor models with short bumper to back of cab dimensions—90 inches to rear top of cab, 91½ inches to farthest point at back of cab—are announced by the Motor Truck Division of International Harvester Co.

They are the four-wheel Model AC-225-D, with 30,000 pounds gvwr rating and a gcw rating of 68,000 or 76,000 pounds depending upon rear axle and transmission specifications;

and the six-wheel ACF-195-D and ACF-205-D models, both with 40,000 pounds gvwr rating and a gcw rating of 70,000 pounds.

Each of the new units offers a selection of diesel power plants in the 175 to 220-horsepower range. Maximum driver comfort and superior engine accessibility for servicing are other common features claimed for the three models.

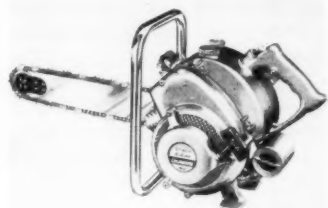
According to the manufacturer, the short cab dimensions permit operators to make more favorable truck applications under over-all length and bridge formula restrictions.

For further information write to International Harvester Co., Motor Truck Division, Dept. C&E, 180 N. Michigan Ave., Chicago 1, Ill., or use the Request Card at page 18. Circle No. 40.

All-purpose chain saw has many design features

A new, lightweight gasoline-powered direct-drive chain saw in the all-purpose, 3½-hp class is announced by the Mall Tool Co., a Division of Remington Arms Co., Inc.

Designated the Silver Logmaster, the new lightweight model is a com-



panion product of the recently announced Golden Logmaster chain saw, and contains all of its major design features.

The unit's features include a fully-protected air filter with push-button release, a fuel-finder gasoline pickup, built-in spark arrester muffler, and a pressure-sealed thumb-button oiler.

The new chain saw is available in 18, 24 and 30-inch bar lengths.

For further information write to the Mall Tool Co., Division of Remington Arms Co., Inc., Dept. C&E, 25000 S. Western Ave., Park Forest, Ill., or use the Request Card at page 18. Circle No. 25.

New lift-loader has extendible reach

A new Sky-Hy Lift loading machine is announced by the Lull Engineering Co.

According to the manufacturer, the new unit is designed for maximum safe operation, as well as versatility, and features such safety points as locating operator away from moving parts, giving him easy access and

BALANCED

From the smallest helicopter to the largest bomber MECHANICS Roller Bearing UNIVERSAL JOINTS accuracy has met every aircraft need. Designs, metals, machining, tolerances, heat treating, hardening balancing and lubrication — all have been specifically adapted for aircraft precision. Let MECHANICS universal joint engineers

help solve your control and power transmission problems. Our new catalog, containing helpful universal joint engineering data and tracing kits, will be sent to engineers, upon request.

MECHANICS UNIVERSAL JOINT DIVISION
Borg-Warner • 2030 Harrison Ave., Rockford, Ill.

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UNIVERSAL JOINTS

For Cars • Trucks • Tractors • Farm Implements • Road Machinery •
Aircraft • Tanks • Busses and Industrial Equipment

For more facts, use Request Card at page 18 and circle No. 265



The Lull Sky-Hy lift-loader features an extendible reach which gives up to 40 inches of horizontal movement of the load, as well as allowing for maximum reach when lifting over scaffolds and other obstructions.

maximum visibility; and full power hydraulic controls, including steering and extendible reach.

The extendible-reach feature gives up to 40 inches of horizontal movement of the load, as well as allowing for maximum reach when lifting over scaffolds and other obstructions. It also means that when picking up or placing a load, the operator can position the machine in the approximate location and then reach forward to pick up the load, rather than moving the machine to the load.

Attachments for the unit include concrete buckets and crane attachments for setting steel and other straight lifting jobs.

The Sky-Hi Lift is available in models with lifting heights of 18 feet 6 inches, 25 feet 6 inches, or 29 feet 6 inches. Special attachments and lifting heights are available on special order.

For further information write to the Lull Engineering Co., Dept. C&E, 3045 Highway 13, St. Paul 11, Minn., or use the Request Card at page 18. Circle No. 12.

Pocket-sized computer for adding, subtracting

The Fractomator, a new pocket-sized adding machine, is announced by the Alexander Drafting Equipment Co.

Said to save time and to eliminate errors and fatigue, the computer totals up to 100,000.00 when used as an ordinary adding-subtracting machine.

The use of the decimal columns in conjunction with two extra columns, one divided in inches, the other in fractions of an inch as low as sixteenths, allows easy addition and subtraction of dimensions expressed in feet, inches, and fractions.

Subtraction is done on the reverse side of the machine, appearing much like the front. The result can be read on either side of the machine: both registers are synchronized.

For further information write to the Alexander Drafting Equipment Co., Dept. C&E, 423 S. Chester Ave., Pasadena, Calif., or use the Request Card at page 18. Circle No. 30.



This huge electric tree crusher is shown clearing a forest near Carthage, Texas. A new LeTourneau unit, the machine features powerful electric motors encased in its 20-foot-wide rollers. Extending from the rollers are more than 300 heavy steel cleats. When the machine is pitted against a giant-sized tree, the front roller climbs the trunk until it has leverage enough to push it over; as the tree falls, the axlike cleats dig in, reducing the wood to splinters. This 280,000-pound behemoth can clear an acre of land in 15 minutes, according to the manufacturer. For further information write to R. G. LeTourneau, Inc., Dept. C&E, 2399 S. MacArthur, Longview, Texas, or use the Request Card at page 18. Circle No. 100.

HIGHWAY

Announces

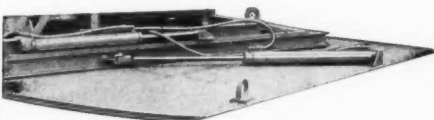


THE

SPOTTER-BASE for Highway Skid-Mounted Earth-Boring Machines

Hydraulic positioning

A hydraulic positioning ram controls auger travel across the rear of the truck body.



A Division of Merritt-Chapman & Scott Corp.

... hydraulic positioning in an 80" arc, extends 22"
... digs holes 9" to 36" in diameter up to 10 feet deep.

The Spotter-Base is your answer for versatile, fast, easy digging. This unit spots the hole, eliminating constant maneuvering of the truck during digging and pole setting operations. The Spotter "reaches" over digging obstructions and can shift digging direction should an underground obstacle be encountered.

Finger-tip controlled hydraulic positioning allows the operator to position the boring machine within an arc of 80 inches — and extend the unit 22 inches from platform. The Spotter will dig at any point within this arc and within the forward and aft traverse. The boring head and intermediate case are equipped with a leveling mechanism. This is combined with the new Spotter-Base to provide extreme digging flexibility. The Spotter can be mounted on a single axle or tandem truck.

UTILITY DIVISION HIGHWAY TRAILER COMPANY

HEADQUARTERS: EDGERTON, WISCONSIN

Manufacturers of: Public Utility Bodies • Earth-Boring Machines • Pole and Cable Reel Trailers
• Winches • Power Take-offs • Service Accessories • Commercial Trailers
• Trailerized Tanks and Dry Bulk Haulers
SALES AND SERVICE IN PRINCIPAL CITIES

For more facts, use Request Card at page 18 and circle No. 266



A single-screw elevator has played a major role in the construction of the new 30-mile, \$58,500,000 superhighway between Dallas and Fort Worth. Since August, 1956, at a nearby railroad spur paving contractors have used a 12-inch-diameter Fort Worth screw elevator to move cement from hopper cars to trucks. The elevator, with an 18-foot lift, is fed by a 12-inch Fort Worth Beeline screw conveyor extending beneath the rail spur. Discharging 150 tons of cement per hour, the elevator loads a 40-barrel truck every three minutes, for delivery to concrete mixers at the paving site. For further information about this elevator, write to the **Fort Worth Steel & Machinery Co.**, Dept. C&E, P. O. Box 1038, Fort Worth, Texas, or use the Request Card at page 18. Circle No. 8.



HENDRIX

DRAGLINE BUCKETS

On any digging operation Hendrix Dragline Buckets move bigger loads faster. A full bucket every cycle results in more material moved . . . in less time . . . for the lowest "cost-per-yard."

*"A Type for Every Digging Purpose" . . .
1/4 to 40 Cubic Yards-Perforated or Solid*

HENDRIX MANUFACTURING COMPANY, Inc.
MANSFIELD, LOUISIANA



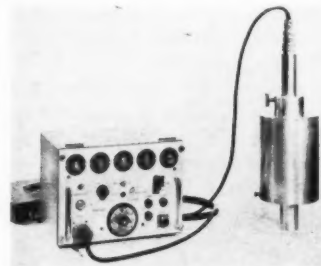
For more facts, use Request Card at page 18 and circle No. 267

Portable unit measures moisture content, density

The d M-Gauge, a new completely portable field instrument for rapidly measuring moisture content or density in a wide range of organic and inorganic materials, is announced by the Nuclear-Chicago Corp.

Simplicity of operation and speed of measurement are said to be primary advantages of the new system. According to the manufacturer, a single operator using the d M-Gauge can obtain accurate moisture or density determinations in two minutes.

The operational principle of the d M-Gauge is based on the varying



degree that radioactivity is scattered when placed in contact with masses of different moisture content or density. Measurements are obtained by inserting either a moisture or density probe into the material being tested and reading a radioactivity scaler for a visual scatter count which varies with moisture or density variations. This count is located on a calibration chart and the moisture content or density of the material is read directly from the chart itself.

An outstanding feature of the system is the substantial volume of material analyzed in a single operation. The probes normally measure a spherical volume of material with an average diameter of 14 inches. Moisture or density measurements can be made at any depth within a material, ranging from the top 12 inches to 60 feet below the surface.

The gage is said to be adaptable to all sub-soil moisture or density measurements associated with highway construction.

For further information write to the Nuclear-Chicago Corp., Dept. C&E, 229 W. Erie St., Chicago 10, Ill., or use the Request Card at page 18. Circle No. 39.

CONTRACTORS AND ENGINEERS



A single-axle unit, the LaCrosse Model DFS-12 low-bed trailer has a 12-ton capacity. Its specifications include an 8x14-foot oak deck platform, 41-inch gooseneck, and 2-foot beavertail.

New low-bed trailer has 12-ton capacity

A new 12-ton-capacity low-bed trailer is announced by the LaCrosse Trailer Corp.

Designated the DFS-12, this single-axle unit makes use of two main beams and full-length outer channels as load-carrying members, to provide maximum strength with minimum weight.

Engineered for use behind standard fifth-wheel tractors, the trailer has an 8x14-foot oak deck platform, with a 41-inch gooseneck and 2-foot beavertail. It comes equipped with four 8.25x15, 14 ply tires; ICC lights; lash rings; and 12 1/4 x 6-inch air or vacuum brakes.

The DFS-12 has a 6x6-inch H-beam cambered axle designed for a gross load of 17,800 pounds, with a gross load of 10,650 pounds on the kingpin.

For further information write to the LaCrosse Trailer Corp., Dept. C&E, 418 Gould St., LaCrosse, Wis. or use the Request Card at page 18. Circle No. 63.

Demountable elevator lifts to 150 feet

Its demountable elevator said to carry men or materials any distance up to 150 feet during construction, repair, or maintenance operations is available from the Hawkeye Engineering Co., Inc.

The car operates on a single vertical column composed of H-beam sections, and has a 2,000-pound capacity at 50 fpm.

The elevator features many safety devices, one of which is the automatic locking of the car to the vertical monorail in the event of electrical or mechanical failure.

According to the manufacturer, the Hawkeye elevator is easy to set up and operate, and can be quickly disassembled and moved to another location and re-erected in a short time.

A modification of the standard Hawkeye elevator is available to provide an explosion-proof unit.

For further information write to the Hawkeye Engineering Co., Inc., Dept. C&E, 1013 S. State St., Syracuse, N. Y., or use the Request Card at page 18. Circle No. 41.

For more facts, circle No. 268--

New concrete admixture aids in winter work

Trimix, a multipurpose integral liquid admixture said to allow concrete and masonry work to continue through temperatures down to 15 degrees F, is announced by L. Sonneborn Sons, Inc.

Trimix is a solution of wetting and set-accelerating agents. When Trimix is added to the gaging water, it increases the wetting action of the water by lowering its surface tension.

The set-accelerating agent is said

to quicken the hydration of portland cement and produce high early compressive strength. This agent also reacts chemically with the cement particles to produce a new crystalline element which serves as a highly effective cementing agent, according to the manufacturer.

For further information write to L. Sonneborn Sons, Inc., Dept. C&E, 404 Fourth Ave., New York 16, N. Y., or use the Request Card at page 18. Circle No. 141.

Choose INSLEY Type WB For everyday dependability

● This Insley Type WB, owned by the Wysong Gravel & Sand Co., Dayton, Ohio, proves its dependability with tough day-in, day-out performance.

The WB thrives on the tough jobs. Its versatility makes it a favorite with contractors everywhere. Available with crawler, self-propelled Maxi or truck mounting.

INSLEY MANUFACTURING CORPORATION
GENERAL OFFICES—INDIANAPOLIS 6, IND.
WEST COAST DIVISION—LOS ANGELES 54, CALIF.
THE MAXI CORPORATION (Subsidiary) LOS ANGELES 54, CALIF.



Portable water heater burns bottled gas

A gas heater designed to provide large quantities of hot water for paving, ready-mix concrete producing, and other operations, is announced by the Hauck Mfg. Co. Available in two models, it can be readily moved by a small crew of men, the manufacturer reports.

This new water heater has conical steel coils of 1-inch seamless steel tubing, and is fitted with recirculation to provide a steady, uninterrupted supply of hot water to 190 degrees F. Model 301G, single-coil type, heats 1,250 gallons of water per hour with a 50 degree F rise, or 450 gallons per hour with a 140 degree F rise. Model 312G, double-coil type, heats 1,660 gallons per hour with a 50 degree F rise, or 600 gallons per hour with a 140 degree F rise from inlet temperature. Thermostatic control is available.

The burner utilizes LP gas, propane, or butane, and can be arranged also for natural, manufactured, or mixed gas.

For further information write to the Hauck Mfg. Co., Dept. C&E, 126 Tenth St., Brooklyn, N. Y., or use the Request Card at page 18. Circle No. 121.

New protective coating for concrete forms

A new protective coating for concrete forms is announced by the Industrial Synthetics Corp.

Designated Formgard, it is said to have the viscosity of water and to penetrate deeply into the pores of the wood. According to the manufacturer, it dries completely in a few minutes and forms a hard yet non-brittle coating on the surface of the form that is impervious to water, oil, or the chemical action of wet concrete. The water-repellent action continues to the depth to which the solution has penetrated.

Wooden forms coated with Formgard can be used a minimum of 5 to 10 times without recoating, the manufacturer states. The compound can also be used on metal or plastic forms.

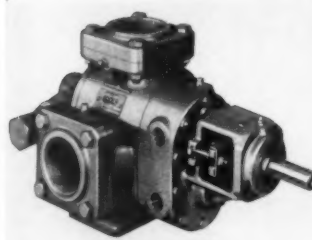
For further information write to the Industrial Synthetics Corp., Dept. C&E, 200 W. Walnut St., Chicago, Ill., or use the Request Card at page 18. Circle No. 5.

New line of pumps features steam chest

A new line of pumps equipped with steam chest is announced by the Roper Pump Division of the Geo. D. Roper Corp.

Designated Roper 3600 Series, the pumps are designed for a range of capacities from 27 to 223 gpm for use at up to 100 psi. They can be truck-mounted or driven through an integral gear reduction by electric motor or gasoline engine. All units are fitted with aluminum gaskets and high-temperature packing.

The addition of the steam chest to



this line is said to make them even more versatile in handling viscous liquids such as Bunker C oil and asphalt.

For further information write to

the Roper Pump Division, Geo. D. Roper Corp., Dept. C&E, 340 Blackhawk Park Ave., Rockford, Ill., or use the Request Card at page 18. Circle No. 26.

Two new bending machines for reinforcing steel

Its new heavy-duty square bender, said to make bends in reinforcing steel up to 2½ inches in diameter, is announced by the Monarch Forge & Machine Works, Inc.

Designated Monarch Model 25, the machine is powered by a 20-hp motor, weighs 7,400 pounds, and takes up a

These TD-24 full-time power circles let you run power circles and

Exclusive, all-weather, seconds-fast International gasoline conversion starting. Direct combustion heat conditions the TD-24's engine, seconds-fast—for full diesel performance. You avoid the warm-up delays and service complications of a surplus starting engine—earn money while "slow starters" are warming up!

Exclusive International Cerametallic-faced engine clutch action. The TD-24 is the only king-sized crawler with this big feature. Immune to heat and cold, this long-lasting clutch gives full-load power-transfer efficiency—anywhere, anytime! This dry-type clutch of simplified design eliminates "high frequency" servicing demanded by clutches with "cooling systems."

Exclusive, years-proved Planet Power steering. Why put up with load limiting "dead track drag" on the turns in a king-sized steering clutch crawler? Why not profit from TD-24 Planet Power steering that enables you to pull or push as big a load on the turns as on the straight-away? See how TD-24 two-track turning power never backs off from a load. "Take the turn" to new profits with Planet Power steering!

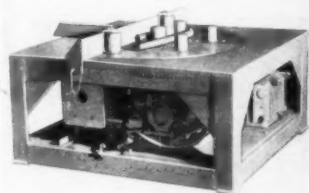
Exclusive cycle-speeding on-the-go shifting. In either Torque-Converter or Gear-Drive model, the TD-24 gives instant stall-preventing Hi-Lo shifting, without stopping or even declutching. Fingertip matching of speed to load under full power gets the job done sooner!

Exclusive TD-24 fingertip operating ease provides the operator comfort incentives and the means to give full days of full capacity cycle-speeding production! Find out how these and all the other TD-24 production exclusives can equip you to run power circles around anything else on tracks. See your International Construction Equipment Distributor for a TD-24 demonstration!



Planet Power steering and Hi-Lo "power-crowd" keeps the TD-24 loading the "75" Payscraper® at top effective speed—adds up to increased daily yardage. Only 30 to 45 seconds needed to heap-load a "75" Payscraper—on this Dominic Leone Construction Co., Inc., Colorado road job!





space of 6x6½ feet.

The Monarch Model 9S stirrup bender is designed especially for heavy-duty stirrup bending, but reportedly will make any kind of bend, except radial bends, in reinforcing steel of any size up to No. 9 bar—

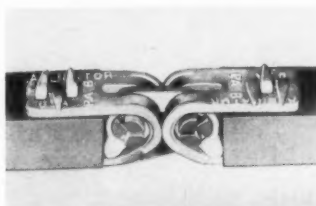
about 1⅝-inch diameter. Power for this unit is provided by a 5-hp, 1,200 rpm electric motor that drives through a gear reducer.

For further information write to the Monarch Forge & Machine Works, Inc., Dept. C&E, 2130 N. W. York St., Portland, Oreg., or use the Request Card at page 18. Circle No. 114.

Aluminum V-belt fasteners for high-speed drives

Alligator aluminum end plate fasteners for use with V-belts in high-speed drives are available from the Flexible Steel Lacing Co.

According to the manufacturer, these fasteners reduce the whip of the belt, when belt speed is in the higher range, affording longer life for internal working parts.



Permanently assembled fasteners are another recent development.

Where a separable joint is not required these new Alligator PA "B" and "C" fasteners are said to work very well. The working parts of the fastener are locked in place by means of a special forming of the end plate. When permanently assembled fasteners are used, the rocker pin tool set, ordinarily used for assembling fastened V-belts, is not needed.

For further information write to the Flexible Steel Lacing Co., Dept. C&E, 4607 Lexington St., Chicago 44, Ill., or use the Request Card at page 18. Circle No. 110.

New line of winterliners offered in six styles

An entire line of newly designed winterliners designed to afford protection against all types of winter weather is announced by the E. D. Bullard Co.

Offered in six styles, the winterliners are made of heavy-duty, tightly



knit, water-repellent, and pre-shrunk drill. They are lined with strong, double-napped, flame-resistant, pre-shrunk fleece. All materials, both inside and out, are of vat-dyed, non-fading, forest green color. Materials are lock-stitched to prevent raveling, and may be laundered without damage.

The new design includes an extra long back that extends well below the collar. The front of the liner covers the forehead almost to the eyebrows.

For further information write to the E. D. Bullard Co., Dept. C&E, 2680 Broadway, Sausalito, Calif., or use the Request Card at page 18. Circle No. 19.

New stud-driving tool features safety device

A new stud-driving tool, reported to prevent the possibility of complete penetration by an alloy steel fastener into a soft or insubstantial construction material, is announced by the Remington Arms Co., Inc.

Designated Model 455A stud driver with Model 440 captive stud guard assembly, the tool can anchor wood to steel or concrete, wood or steel to steel, or threaded fasteners directly into steel or concrete. It is powered by a .22-caliber blank cartridge.

For further information write to the Industrial Sales Division, Remington Arms Co., Inc., Dept. C&E, Bridgeport 2, Conn., or use the Request Card at page 18. Circle No. 62.

For more facts, circle No. 269

production exclusives around "cycle-stallers"



Even with such offset loads as a boulder-bucking angled blade—benching a road round a hill—TD-24 Planet Power steering lets you concentrate the power where you want it. You stay on course—production stays up!

On slam-bang rock-dozing or moving other heavy materials, instant TD-24 Hi-Lo shifting adjusts tractor power to load resistance—increases production, avoids delay! And you get fast reversing to speed shuttle-dozing!



**INTERNATIONAL[®]
CONSTRUCTION
EQUIPMENT**

International Harvester Co., 180 N. Michigan Avenue, Chicago 1, Illinois

A COMPLETE POWER PACKAGE: Crawler and Wheel Tractors... Self-Propelled Scrapers... Crawler and Rubber-Tired Loaders... Off-Highway Haulers... Diesel and Carbureted Engines... Motor Trucks... Farm Tractors and Equipment.

keeps the
d—adds
needed to
struction



Product Parade

New floor-surfacing material offered

A new high-strength, impact-and-chemical-resistant monolithic floor-surfacing material is announced by The Master Mechanics Co.

According to the manufacturer, the new material—designated Monile—is a dense, man-made stone. It is formed in place and bonds to cement and other surfaces with a reported strength of 585 psi.

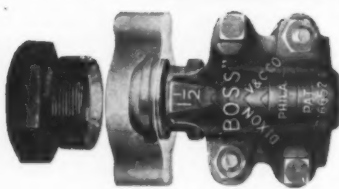
Monile is said to have high resistance to the freeze-thaw cycle.

For further information write to The Master Mechanics Co., Dept. C&E, 2097 Columbus Road, Cleveland, Ohio, or use the Request Card at page 18. Circle No. 64.

*Sabest Connections
for Pile Driver Hose
AND OTHER STEAM, AIR, WATER
AND HYDRAULIC APPLICATIONS*

"GJ-BOSS"

GROUND-JOINT
FEMALE
COUPLING
STYLE X-34

The original washerless coupling that is unequalled for safety in every high pressure service, and will therefore serve with exceptional efficiency and economy on all low-pressure applications. Built to withstand hard use and rough handling. Ground-joint union between stem and spud provides leak-proof, trouble-free seal...no lost or worn-out washers to replace. All parts malleable iron or steel, thoroughly rustproofed. Furnished with super-strong "Boss" Offset and Interlocking Clamps. Sizes 1/4" to 6", inclusive.

**COMPANION
MALE COUPLING**

"BOSS", STYLE MX-16



Companion coupling for "GJ-Boss", described above, and "Boss" Washer Type Couplings Style W-16. Will prove equally efficient and economical for all applications where standard iron pipe nipples are normally used. Each size fits same size hose...oversize hose not required. Coupling consists of I.P.T. male stem and "Boss" Offset and Interlocking Clamp. Steel or malleable iron, thoroughly rustproofed. Sizes 1/4" to 6", inclusive.

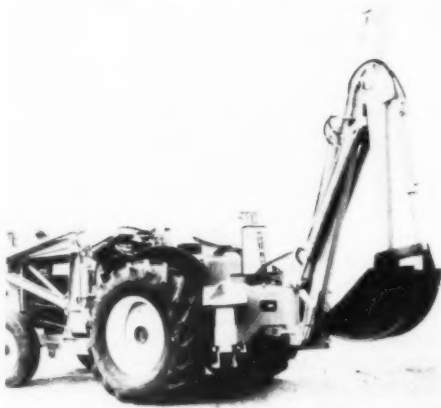
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of Mechanical Rubber Goods

**DIXON
Valve & Coupling Co.**

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DIXON VALVE & COUPLING CO., LTD., TORONTO Associate Companies:
Rock Iron Company, Inc., Garyville, Pa. • Phoenix Brass Steel Company, Canton, N.Y.

For more facts, circle No. 270

The new Model WR-350 backhoe has a digging range of 190 degrees, a digging depth of 12 feet below grade, and a loading height of 9 feet. It is designed for use with I-H 300-350 utility tractors.



New backhoe features 190-degree digging range

Its new Model WR-350 backhoe, for mounting on International-Harvester 300-350 utility tractors, is announced by the Wain-Roy Corp.

The new unit has a digging range of 190 degrees, a digging depth of 12 feet below grade, and a loading height of 9 feet.

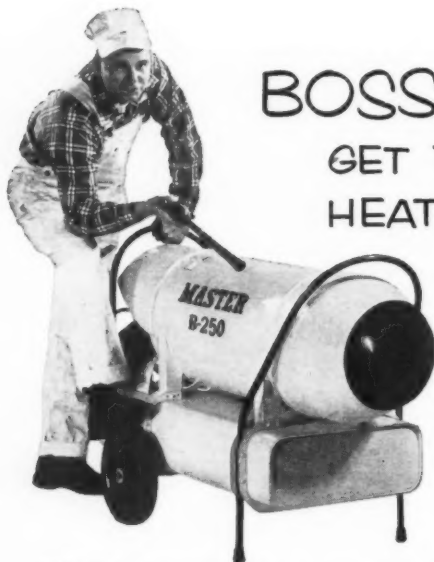
According to the manufacturer, a new link-lever swing system provides a smooth-cushioned swing, with all ordinary swing linkage wear automatically compensated and adjusted.

The boom and dipper stick are

welded box sections of high-strength steel. The crowd cylinder is said to provide maximum digging power, plus high-speed retraction. Other features include powerful twin boom cylinders, fingertip control of the hydraulic system, and independent bucket control.

The hoe is a completely self-contained unit.

For further information write to the Wain-Roy Corp., Dept. C&E, Hubbardston, Mass., or use the Request Card at page 18. Circle No. 120.



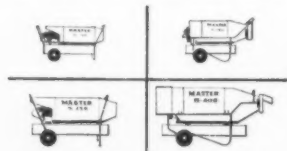
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GET THIS
HEATER!**

**We'll forget the cold weather
and keep your winter profits high**

"We won't be slowed down by cold weather. And we'll be a lot more comfortable, too, with a Master heater on the job."

"It puts out a steady stream of warm air wherever you want it. You can plaster, pour concrete, thaw and dry materials, spot heat outside, etc. It's portable, just wheel it around, plug it in and flip the switch. It'll run for 16

hours or more on a tank of kerosene or fuel oil. And for only 30¢ an hour it puts out enough heat to warm the biggest jobs. It's perfectly safe, too, boss... doesn't need a vent. So see your Master distributor, or write for all the facts on the new Master B-250 and other models. You'll see that only Master has all the features you want. No obligation."



100,000; 160,000; 250,000 and
400,000 BTU/hr. units available.

MASTER

MASTER VIBRATOR COMPANY
324 Stanley Ave., Dayton 1, Ohio

For more facts, use Request Card at page 18 and circle No. 271

Lightweight chain saws feature increased power

Two new chain saws are announced by the McCulloch Motors Corp.

Said to be 20 per cent more powerful than previous models, the two new saws also feature improved cooling, longer life, and easier maintenance.

The McCulloch Super 44 produces 6.5 horsepower and weighs only 19 pounds. A direct-drive unit, it features center-blade mounting for maximum felling and bucking balance. It is available with 12, 18, 24, and 30-



inch blades.

Its gear-driven companion, the McCulloch Super 55, produces 6.5 horsepower and weighs 22 pounds. This unit features a two-position blade mount for center or low stump cutting. It is available with 12, 18, 24, 36, and 42-inch blades, and with a 15-inch plunge for pulp cutting.

The increased horsepower of the new saws is made possible by increased cylinder size.

For further information write to the McCulloch Motors Corp., Dept. C&E, 6101 W. Century Blvd., Los Angeles 45, Calif., or use the Request Card that is bound in at page 18. Circle No. 15.

New desk-side computer is mobile, flexible

A high-speed, general-purpose computer said to possess logical and

**SEE THE
Sasgen
LIFTAMATIC
at your
dealer's...**

ALUMINUM
OR STEEL
MODELS

Lifts up to
1200-lb. load
to 90 ft.

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LITERATURE

Sasgen DERRICK COMPANY

3127 GRAND AVENUE • CHICAGO 22, ILLINOIS

For more facts, circle No. 272

CONTRACTORS AND ENGINEERS



Bridge and highway design are among the many suggested applications for the new IBM Auto-Point computer. Mounted on wheels for easy portability, the machine features automatic positioning of the decimal point and reportedly can do the work of up to sixty desk calculators.

arithmetical facilities normally found only in large machines is announced by the International Business Machines Corp.

Designated Model 610 Auto-Point computer, the new machine is designed for desk-side use, and is mounted on wheels for easy portability. It can do the work of up to 60 desk calculators, the manufacturer reports, and features automatic positioning of the decimal point.

The unit is completely self-contained, from initial "programming" (feeding the computer its working data and operating instructions) to final output on punched tape or an IBM high-speed electric typewriter, and its operation is said to be extremely simple.

Bridge and highway design are among the many suggested applications for the machine.

For further information write to the International Business Machines Corp., Dept. C&E, 590 Madison Ave., New York 22, N. Y., or use the Request Card that is bound in at page 18. Circle No. 98.

THOR PORTABLE POWER TOOLS

1500 tools
for automotive service,
industry, construction

World's largest exclusive
manufacturer of portable
air and electric tools



THOR POWER TOOL CO.
Prudential Plaza, Chicago 1, Ill.
Branches in all principal cities

For more facts, circle No. 273

NOVEMBER, 1957

Shown supplying air to two Gardner-Denver drills, this tractor-mounted Worthington Blue Brute 600-cfm rotary compressor with power takeoff reportedly will start without hesitation in temperatures to 30 degrees below zero. According to the manufacturer, every moving part of the Blue Brute 600 is right at the mechanic's fingertips for quick and easy on-the-job maintenance. For further information about this compressor, write to the Worthington Co., Dept. C&E, Worthington & Harrison Aves., Harrison, N. J., or use the Request Card at page 18. Circle No. 102.



Aluminum-filled sealer in self-metering tubes

A new aluminum-filled epoxy resin compound for sealing leaking tanks and joints is announced by the Smooth-On Mfg. Co.

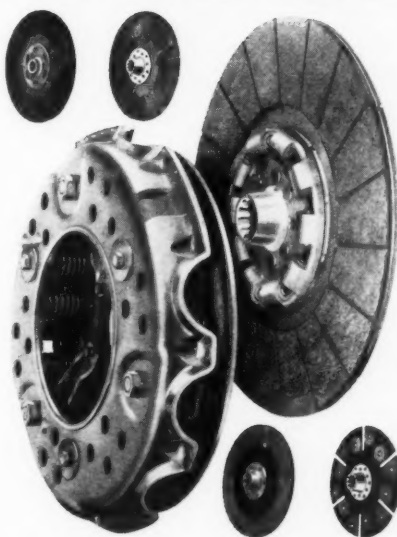
Designated Metalset A4, and of paste-like consistency, the compound is designed to smooth, fill, or bond metal surfaces, or to fill seams, cracks, or holes in wood or metal. It is reported to be water, oil, and gasoline-

proof, as well as being non-flammable and highly resistant to acid and alkali.

Metalset A4 is available in self-metering tubes said to make mixing and measuring a simple task.

For further information write to the Smooth-On Mfg. Co., Dept. C&E, 572 Communipaw Ave., Jersey City 4, N. J., or use the Request Card at page 18. Circle No. 43.

ROCKFORD



A Clutch Plate—for Every Use

ROCKFORD CLUTCHES are made with a wide variety of friction plates—to meet your specific needs exactly. Organic, metallic, segment or Morlife® cerametallic facings provide the right torque, wear and heat resistance characteristics. Cushioning arrangements minimize the effects of shock-load engagements. Dampeners blot out vibration and chatter. Pressure plates of high tensile strength resist centrifugal force of modern high speed engines. These ROCKFORD advantages will help you select the right friction clutch for your particular needs.

SEND FOR THIS HANDY BULLETIN
Gives dimensions, capacity tables and complete specifications. Suggests typical applications.
ROCKFORD Clutch Division BORG-WARNER
314 Catherine St., Rockford, Ill., U.S.A.
Export Sales Borg-Warner International — 36 So. Wabash, Chicago 3, Ill.

CLUTCHES

For more facts, use Request Card at page 18 and circle No. 274



Small
Spring Loaded



Heavy Duty
Spring Loaded



Oil or Dry
Multiple Disc



Heavy Duty
Over Center



Power
Take-Offs



Speed
Reducers

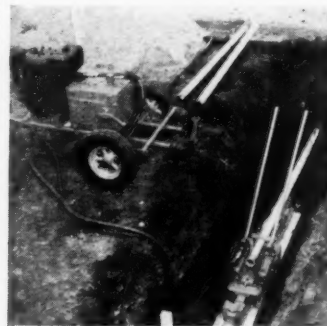


FAST, LOW-COST WAY TO INSTALL PIPE . . .

push it under streets, roads,
tracks, lawns with a timesaving

GREENLEE HYDRAULIC PUSHER

Speed underground piping jobs this way. GREENLEE Pusher is one-man-operated (by hand or with power pump), portable, simple to set up and use. No tearing up of pavement, floors, lawns . . . does away with extensive ditching, tunneling, backfilling, repaving. GREENLEE Pusher cuts job time to a fraction . . . often pays for itself on first job.



Two feet per minute average pushing time
GREENLEE Pushers are available in two sizes: No. 790 for 3/4" to 4" pipe . . . No. 795 for pipe over 4", concrete sewer pipe, large ducts. Average performance of No. 790, shown above with power pump, two feet per minute. Write for literature.



GREENLEE TOOL CO.
2271 Columbia Avenue • Rockford, Illinois

For more facts, circle No. 275

For cold-weather operations, a special cab is available for the Davis backhoe. The cab is roomy and attaches directly to the seat and footrest assembly. Since the seat revolves with the backhoe boom assembly, the operator always has excellent vision at all angles of operation. The cab windows are made of shatterproof plastic. For further information write to **Massey-Harris-Ferguson, Inc.**, Industrial Division, Dept. C&E, 1009 S. West St., Wichita, Kans., or use the Request Card at page 18. Circle No. 113.



If it moves... Timken-Detroit Brakes can stop it!

Better control for the
"heavyweights"

HEAVY-DUTY "P" SERIES POWER BRAKES



Dependable control is indispensable on all large construction vehicles. Manufacturers must provide brakes that are rugged, safe and durable.

To meet this need, Timken-Detroit makes the Heavy-Duty "P" Series Brakes to offer manufacturers greater dependability... better control... and longer service.

The Heavy-Duty "P" Series Brake utilizes a unit-mounted design offering a compact, self-contained assembly. Camshaft and air chamber support brackets are mounted directly onto the brake spider. (Inboard chamber mounting design is also available.)

Temperatures during operation are lower and liner life is longer because of the open-

type spiders which assure good internal ventilation and rapid cooling. Timken-Detroit 3/4" "Econo-liners" are tapered to provide greatest thickness where most wear occurs... less waste material at reline.

Other features include: heat-treated, malleable iron brake shoes... securely riveted brake linings... constant lift S-type, heat-treated cam... sealed, needle bearing camshaft mountings... long-life bronze bushings in anchor-pin holes... hardened, rust-proofed anchor pins.

Heavy-Duty "P" Series Brakes are available in a complete range of capacities and sizes to fit every Heavy-Duty operating requirement.

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Another Product of...

**Rockwell Spring
and Axle Co.**



For every industrial, agricultural or automotive application where braking is required!

BRAKE DIVISION
Ashtabula, Ohio

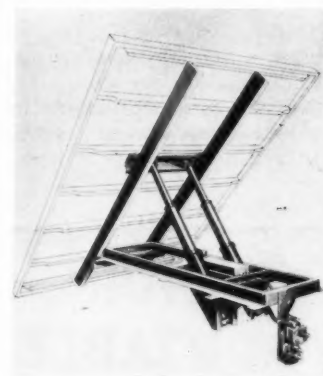
For more facts, use Request Card at page 18 and circle No. 276

New telescopic hoist features 11-ton capacity

A new underbody telescopic hoist designed for field conversion installation under platform and other types of general purpose bodies is announced by the Hercules Steel Products Co.

Designated Model 2240, the new hoist features strong, lightweight construction with a considerable saving in hoist weight, plus forward mounting on the truck chassis to minimize truck frame deflection during dumping.

With a rated capacity of up to 11 tons, the hoist is intended for use under bodies up to 14 feet in length. It is suitable for 1 1/2 to 2-ton chassis



with an 84-inch CA dimension, and has a dumping angle of 45 degrees.

Optional longitudinals, Z-type for bodies with wooden longitudinals and channel for bodies with steel crossmembers, are offered. The hoist subframe is constructed of 1/4-inch formed alloy steel.

The entire unit includes a built-in reservoir, positive-acting control valve, and a high-speed gear-type pump. According to the manufacturer, leak-free chevron packing and integral dirt wiping rings in the twin 4-inch 2-stage telescopic cylinders assure lengthy and trouble-free service life.

Floor or dash-mounted controls are optional.

For further information write to the Hercules Steel Products Co., Dept. C&E, Galion, Ohio, or use the Request Card that is bound in at page 18. Circle No. 2.

CONTRACTORS AND ENGINEERS

New wheel-type harrow has many applications

The Brushmaster wheel-type offset harrow is offered by the Alexander Mfg. Co.

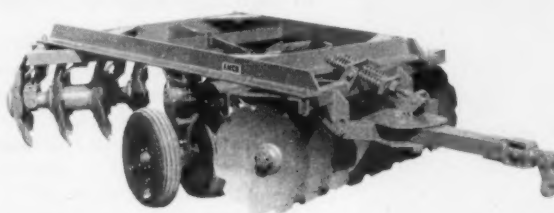
Featuring a rigid frame and dual tires, the new unit is said to be especially valuable in cut and fill work to loosen the soil before removal and to break up the topsoil in either permanent or temporary material pits.

Other recommended job applications for the machine include stabilizing the soil by blending in necessary water and humus, cutting impervious soil to accept moisture, lift-

ing excessively wet soil to dry before compaction, and scratching a compacted surface for keying in a new lift—especially after a hard rain.

The Brushmaster is said to be easy to adjust, assuring the operator of obtaining the desired mixture and cut. The unit is available in 9, 11, and 13-foot sizes.

For further information write to the Alexander Mfg. Co., Dept. C&E, P. O. Box 407, Picayune, Miss., or use the Request Card at page 18. Circle No. 20.

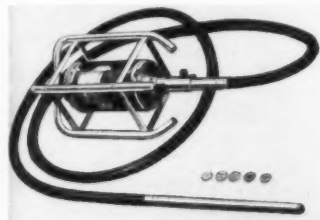


The design of the Brushmaster wheel-type offset harrow permits a variety of job applications. The unit is available in 9, 11, and 13-foot sizes.

New 3/4-inch vibrator aids in tight work

A new Thrust-O-Matic cylinder 3/4-inch in diameter is announced by Wyzenbeek & Staff, Inc.

The new vibrator comes complete



with a flexible shaft of the same diameter as the head, and in lengths of 5 and 10 feet. It can be attached to any WYCO Junior vibrator shaft now in use, or is available complete as a unit with the WYCO Junior vibrator electric motor.

For further information write to Wyzenbeek & Staff, Inc., Dept. C&E, 223 N. California Ave., Chicago 12, Ill., or use the Request Card at page 18. Circle No. 117.

New hydraulic cylinder cuts over-all cycle time

A new Thrust-O-Matic cylinder said to provide alternating speed and power cycles in the same basic unit, employing a single pump and motor, is announced by the Crown Engineering Corp.

Completely self-contained, the Thrust-O-Matic is equipped with automatic valving—the shift from low-power, high-speed to high-power, slow-speed stroke being effected by means of spring loaded valves in the head, responding to increases and decreases in system pressure.

Application of the Thrust-O-Matic cylinder is said to be practically unlimited on equipment where intermittent demand for fast traverse at low power is present. It can, in many instances, be substituted directly for single-cycle cylinders with a minimum of modification, and at high savings in over-all cycle time.

For further information write to the Crown Engineering Corp., Dept. C&E, 4700 Washington Ave., Houston 8, Texas, or use the Request Card at page 18. Circle No. 34.

Any tire... any size... anywhere...

OFF-HIGHWAY TIRE AIR SERVICE IS SCHRADER'S BUSINESS



Wherever your job is, no matter how heavy the load or rough the ground, Schrader Large Bore tire valves, gauges and service equipment are available for your large tires. Faster inflation. Rugged dependability.

Large Bore Valve service is easy and practical with Schrader Products. Ask Schrader your questions. It's our business to have answers ready... tube or tubeless. Schrader's information is reliable and easy to get.

Schrader's reputation for top quality and top service is world-wide. When questions come up, remember Schrader is ready with the up-to-the-minute answers.



Schrader
a division of SCOVILL

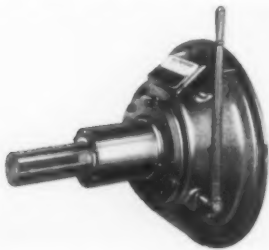
A. SCHRADER'S SON - BROOKLYN 38, N. Y.
Division of Scovill Manufacturing Company, Incorporated

FIRST NAME IN TIRE VALVES

FOR ORIGINAL EQUIPMENT AND REPLACEMENT

For more facts, use Request Card at page 18 and circle No. 277

Product Parade



New power takeoff eliminates pilot bearing

A new extra-heavy-duty type power takeoff that eliminates the conventional pilot bearing is announced by the Rockford Clutch Division of the Borg-Warner Corp.

According to the manufacturer, the main shaft bearings do not require lubrication more than once a year, and the clutch release bearing is lubricated for life.

The main bearings are of the 40,000-hour type. Belt loads up to 5,000 pounds are handled on the drive shaft.

The unit is furnished with a single or double plate, organic or Morlife cerametallic-faced gear-tooth drive type clutch.

For further information write to the Rockford Clutch Division, Borg-Warner Corp., Dept. C&E, 1301 18th Ave., Rockford, Ill., or use the Request Card at page 18. Circle No. 67.

New unit rips, dozes in one operation

A new bulldozer for the Caterpillar D7 tractor is announced by the Caterpillar Tractor Co.

Designated Gyrodozer, the new tool combines the functions of ripping and moving material in one bulldozing operation, according to the manufacturer.

Four penetrating teeth are mounted on and extend 23 inches in front of the cutting edge of the bulldozer blade. To facilitate any desirable ripping angle of the teeth, the blade is capable of being tipped both forward and backward, and of being tilted 3 feet to either side. Tilting action is provided by two hydraulic cylinders mounted on the blade in place of the tilt braces. Raising and lowering of the blade is controlled by a No. 25 cable control. A No. 44 hydraulic control is used to govern tip and tilt actions of the blade.

When dozing on rough terrain, the full width of the Gyrodozer may be kept in contact with the load on slopes up to 20 degrees, the manufacturer reports.

The tilt feature of the unit also allows the operator to dig with one or more teeth on either side of the moldboard, a useful ability when digging a continuous ditch or pioneering on a hillside. It can also be used in surfacing boulders or removing small trees.

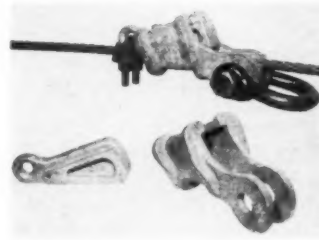
For further information write to the Caterpillar Tractor Co., Dept. C&E, Peoria, Ill., or use the Request Card at page 18. Circle No. 144.

Fitting attaches load to continuous cable

A new fitting said to provide a quick way of attaching a load to a continuous cable is available from Sauerman Bros., Inc.

Recommended for car pulling, barge moving, rigging, or any job where a load must be connected to a line, the fitting consists of a wedge clamp, wedge, and cable clip.

To attach the load to the cable, the wedge clamp is placed on the cable with the small end in the direction of the cable pull. The wedge is



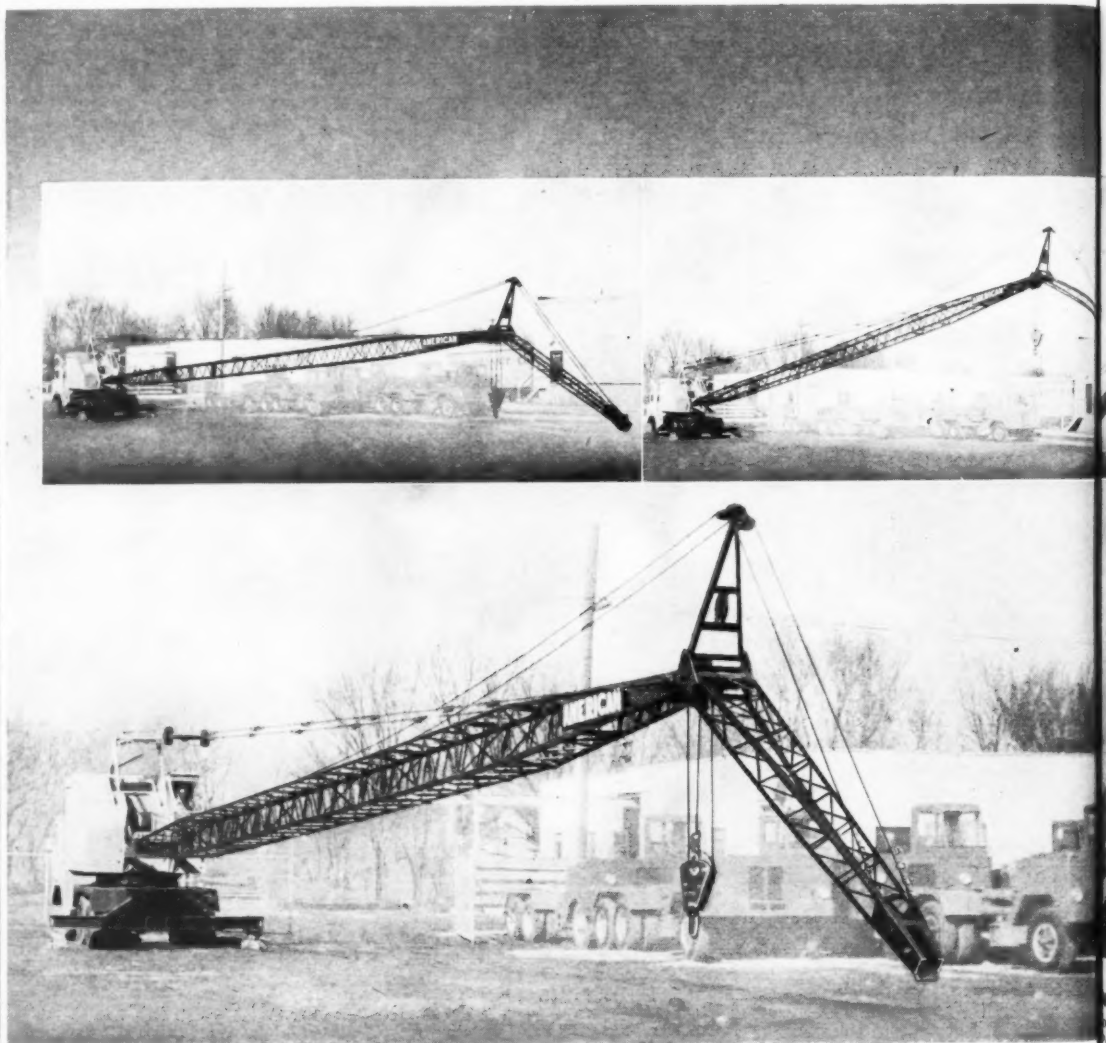
then inserted. The cable clip passes through the eye of the wedge and locks it in place. A clevis and pin are frequently used to attach the load to the clamp.

These continuous cable clamps are manufactured for rope sizes from $\frac{3}{8}$ to $1\frac{1}{4}$ inches.

For further information write to Sauerman Bros., Inc., Dept. C&E, 616 S. 28th Ave., Bellwood, Ill., or use the Request Card at page 18. Circle No. 27.

New diazo rotary printer available in two models

Its Blu-Ray diazo rotary printer is announced by Peerless Colonial Products, Inc. The unit is made in 22 and 42-inch sizes, and has printing speeds



AMERICAN 12½-TON CRANE LIFTS 100-FOOT BOOM WITHOUT HELP!

Here's proof of American Cranes' lifting capacity—a stock model 100 Series Truck Crane lifting 100 feet of boom right from the ground *without help—without hesitation!*

In designing this new 12½-ton capacity crane, American engineers have achieved a perfect combination of machine balance, gantry design and precision boom hoist mechanism. This exacting match permits the 100 Series to lift as much as 85 feet of boom—15 feet of jib with ease and perfect control.

The boom hoist's positive power, controlled with an easily operated heavy duty clutch, raises the boom smoothly and quietly. American's optional, overrunning sprag clutch provides 100% boom con-

trol—there's not an inch of drop when the boom starts down. The exceptional balance of the 100 Series is demonstrated by the fact that additional counterweight isn't required, even when lifting this long boom!

A new concept in crane design is offered in the tough, lower-cost American 100 Series crawler and truck cranes. It's a concept based on maximum workability, peak efficiency at consistently low operating and upkeep costs. Actual job performance records have *proved this statement!* Your American Distributor has complete facts on this amazing new crane that's available with any front, on crawlers and rubber, in ½-yard, 12½ and 15-ton capacities!



up to 4 fpm.

Features of the Blu-Ray include: all ball-bearing suspension, fingertip

external speed control, single starting switch for motors and lamps, fluorescent illumination, and automatic belt tension on 16 rubber belts.

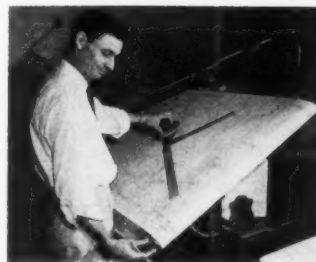
The developing unit features a transparent styrene tube for visual observation of print development, and a heavy cast Zamac base for stability. Ammonia is contained in an unbreakable polyethylene jar.

For further information write to Peerless Colonial Products, Inc., Dept. C&E, 200 N. Main St., Ivoryton, Conn., or use the Request Card that is bound in at page 18 of this issue. Circle No. 17.

Drafting board device eliminates splicing

A new Rollo-Draft attachment for drafting boards, said to make long drawings in one continuous piece, is announced by Aqua Sportsman, Inc. Operating on the same principle as the roll film camera, Rollo-Draft keeps drawings of any size smooth and taut without tacks or tape, and eliminates splicing sections together for continuous feeding through a blueprint machine, according to the manufacturer.

The unit consists of two tubes. One



The Rollo-Draft attachment for drafting boards keeps drawings of any size smooth and taut without tacks or tape, and eliminates splicing sections together for continuous feeding through a blueprint machine.

tube holds the fresh drafting or tracing paper. As each section of a drawing is finished, it feeds on to the roll mounted at the opposite side of the board. When the entire drawing is completely finished, the tube on which it has been rolled is removed from its holder and taken directly to the blueprint machine.

Paper can be moved right or left at any time by means of cranks on either side, and locked into position.

The Rollo-Draft reportedly can be installed on any board in less than 30 minutes.

For further information write to Aqua Sportsman, Inc., Dept. C&E, 2518 Leslie Ave., Norwood, Cincinnati 12, Ohio, or use the Request Card at page 18. Circle No. 33.

New clutch arrangement for heavy-duty units

Its new clutch arrangement for use in heavy-duty and off-highway machines is available from the Rockford Clutch Division of the Borg-Warner Corp.

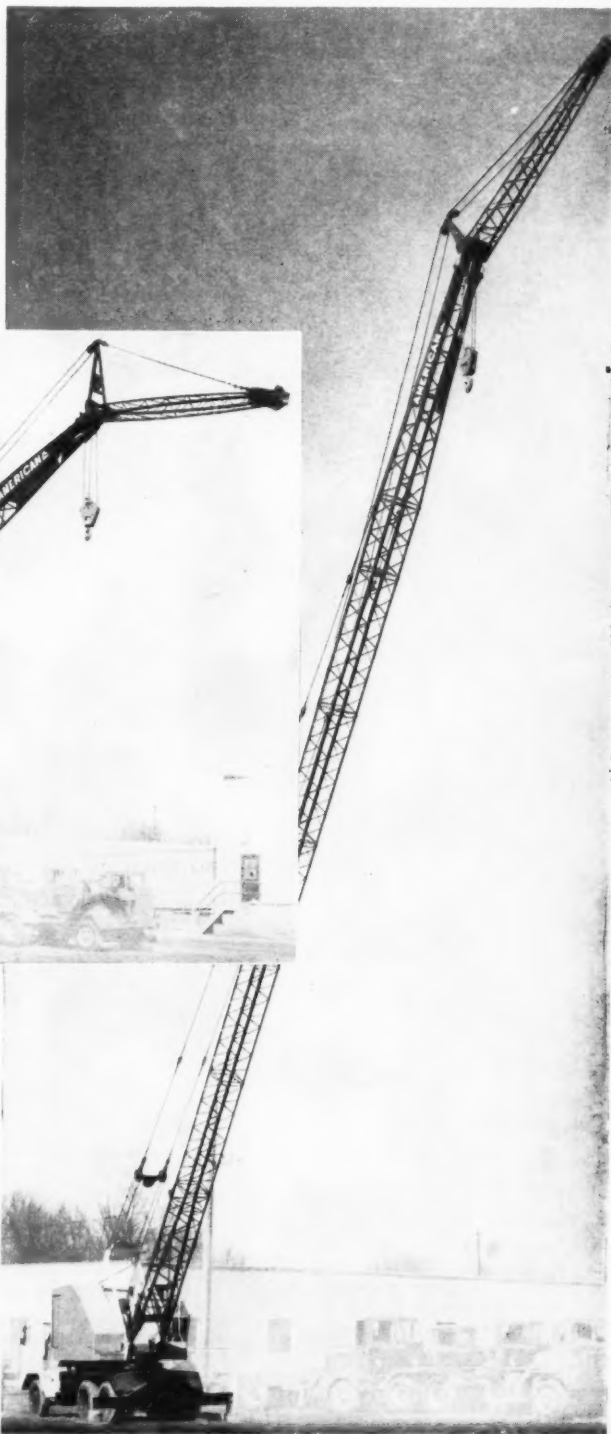
According to the manufacturer, with ceramic-base friction material



the Morlife clutch produces increased capacity, better ventilation, better heat disposal, and is cooler running. Other advantages are said to be longer wear, fewer adjustments, and more usable lining material.

The Morlife clutch is available in both over-center and spring-loaded types in a wide range of sizes up to 18 inches, in both single and double plate design.

For further information write to the Rockford Clutch Division, Borg-Warner Corp., Dept. C&E, 1301 18th Ave., Rockford, Ill., or use the Request Card at page 18. Circle No. 4.



WITHOUT HELP, the American 100 Series lifts its 100-foot boom directly from the ground to working position. Precise boom control and exceptional stability give operators fast, accurate load spotting on every job. Highly mobile and maneuverable, the 100 Series can travel over most highways without stripping to meet road restrictions. On the job, it sets up for work almost automatically. The operator alone raises the gantry legs into position—the high gantry locks automatically. Simple, safe pin connections speed boom section assembly! At work, the 100 Series, equipped with a dragline, clamshell, backhoe, shovel or crane front, maintains a consistently high production pace at low operating cost. Dependable American crawler and truck mounted cranes are offered in capacities from 1/2-yard to 2 yards, 12 1/2 to 50 tons lifting capacity.

FOR 75 YEARS, AMERICAN equipment has been the number one choice to work on the biggest, toughest projects in the world. They perform every type of job under all possible handicaps. Experience in this world-wide testing ground has given American engineers unequalled knowledge that is converted into the best, most complete crane line available. When you buy American, you get full advantage of three-quarters of a century of experience! See your American Distributor or write direct for information on the machine to do your job best.

AMERICAN HOIST and Derrick Company

St. Paul 7, Minnesota

For more facts, use Request Card at page 18 and circle No. 278

This new Dragon Model 8-inch dredge has a rated output of up to 85 cubic yards per hour. Designed for all types of general dredging work, it will pump mud, silt, sand and other light sedimentary materials from a maximum digging depth of 17 feet below the surface of a body of water.

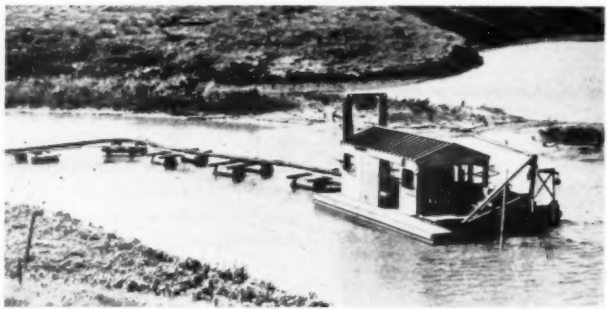
New portable dredge pumps 85 yards per hour

A new portable 8-inch dredge (Series 130H) is announced by the Ellicott Machine Corp. Part of the firm's line of hydraulically operated Dragon dredges, the new unit has a rated output of up to 85 cubic yards per hour.

Heart of the dredge is an Ellicott 8-inch heavy-duty centrifugal suction pump powered by a 6-cylinder diesel engine having a continuous rating of 142 shaft horsepower. This main die-

sel engine also powers the hydraulic pump for supplying power to the cutter and winch motors, thereby eliminating the expense and additional weight of an auxiliary power supply.

The new dredge can be used for all types of general dredging work including mosquito control, land reclamation, and the pumping of fill for real estate development and road-building purposes. It will pump mud, silt, sand, and other light sedimentary



materials from a maximum digging depth of 17 feet below the surface of a body of water.

Of welded steel construction, the hull consists of two tank-type pontoons, the assembled size being 32 feet long x 14 feet wide x 4 feet deep. The dredging machinery is mounted on the main pontoon and can be handled as a single unit. The removable side hull pontoon tank is attached to the main tank for trim and stability.

This new portable 8-inch dredge is

engineered to transport water-bound solids through pipelines of 500 to 1,500 feet. Its rated capacity of 85 cubic yards per hour is figured on the basis of pumping through 1,000 feet of 8-inch discharge pipeline with a terminal elevation of 5 feet above the surface of the water.

For further information write to the Ellicott Machine Corp., Dept. C&E, 1611 Bush St., Baltimore, Md., or use the Request Card at page 18. Circle No. 14.

Trenching rate of 8 fpm offered by new unit

Its new Model LD Ditch-Witch trencher is announced by The Charles Machine Works, Inc.

Powered by a Wisconsin 18-hp air-cooled engine, the Model LD is com-

pletely mobile, with trenching speeds up to 8 fpm and road speeds up to 5 mph. Standard trench widths are available from 4 to 16 inches at 2-inch intervals. The machine is de-

A WORLD OF SATISFACTION

All over the globe where the going is rough... the material tough... Owen Clamshells will be found speeding operations, dependably and economically. Their superior performance gets the work done faster, while their rugged construction keeps them on the job longer.

Exhaustive research... faultless design... 50 years experienced engineering... painstaking construction... these are the contributing essentials that maintain Owen as the outstanding Quality Clamshell Bucket for all digging and material handling operations, large or small.

Write today and get the convincing facts and latest catalog...all free upon request.

The OWEN BUCKET Co.
BREAKWATER AVENUE, CLEVELAND 2, OHIO
BRANCHES: New York • Philadelphia • Chicago
Berkeley, Calif. • Fort Lauderdale, Fla.

For more facts, use Request Card at page 18 and circle No. 279



James K. Gann, driller; Darrell Boren, Supt.; Wm. A. Small, Sr., contractor of Explosives Engineering Service, Oregon, Ill. These men know rock bits and how to handle tough jobs.



BRUNNER & LAY ROK-BITS CUT DRILLING COSTS THE MOST

Reports WM. A. SMALL, Sr.
Explosives Engineering Service

"Brunner & Lay carbide Rok-Bits were used exclusively on this job, and we have also used them to drill other formations in various parts of the country.

"We have found Rok-Bits to be the best and give the performance that holds costs in line, for any and all types of drilling from the toughest job on down." Get the bits best fitted to your drilling needs—call our nearest plant. Brunner & Lay, Inc., 9300 King St., Franklin Park, Ill. Plants and warehouses: Philadelphia, Asheville, Birmingham, Dallas, Denver, Los Angeles, Portland, Ore., Montreal.

Rock cut through very tough, decomposed granite and quartzite on Wisconsin road relocation, 3-in., "X" type, 600 Brunner & Lay Rok-Bits speed the operation. Holes were drilled over 30 ft. deep, generally on 6 x 12 ft. centers, along with shallower drilling.

Our 75th Anniversary



Brunner & Lay carbide Rok-Bits are available in the 600 series (illustrated) and also in 400, 200 series and J-7.50 threads in many sizes—4 1/2 down to 1 1/2-in. Supplied too in standard wagon drill and hand held drill threads. Bit sizes up to 6 1/2-in. in our Hole-Master. Write for catalog No. 756.

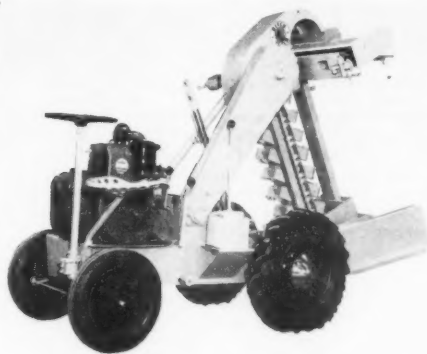
Brunner & Lay Products

CARBIDE ROK-BITS • INTRA-SET STEEL • DRILL RODS • COUPLINGS, ADAPTERS & EXTENSION STEEL
PNEUMATIC TOOL ACCESSORIES • MOIL POINTS, CLAY SPADES, ASPHALT CUTTERS, ETC.

For more facts, use Request Card at page 18 and circle No. 280

CONTRACTORS AND ENGINEERS

The Model LD Ditch-Witch trencher is completely mobile, with trenching speeds up to 8 fpm and road speeds up to 5 mph. The machine will dig a 4 or 6-inch trench to a depth of 42 inches.



signed to dig a 4 or 6-inch trench to a depth of 42 inches. Approximately 6 inches less depth is obtainable for each additional 2 inches in trench width.

Other features contained in the Model LD are automotive-type steering, automotive transmission with three speeds forward and reverse, double-acting hydraulic pump for raising the bucket line, and 15-inch drive wheels for increased traction.

For further information write to The Charles Machine Works, Inc., Dept. C&E, 625-30 Birch St., Perry, Okla., or use the Request Card at page 18. Circle No. 10.

New device for scrapers reduces cable breakage

A new cable controller for scrapers is announced by the U. N. Co., Inc. Available for Caterpillar DW-20 and DW-21 scrapers, the new device is said to eliminate slack at the drum by operating the brake on both the P.C.U. and the cable controller simultaneously, thereby preventing cable criss-cross and dog-knotting. It reportedly keeps the cable perfectly reeved at all times.

Furthermore, according to the manufacturer, in any cycle of the operation it is impossible for the operator to overload the cable to the point of breakage.

For further information write to the U. N. Co., Inc., Dept. C&E, 1255 Boylston St., Boston 15, Mass., or use the Request Card at page 18. Circle No. 91.

Iron powder electrode has many applications

Its new Rocket 10-IP iron powder electrode for E-6010 type requirements is announced by the Hobart Bros. Co.

Using the free arc or drag technique, this electrode provides a shallow, rippled, smooth weld deposit in all positions, including vertical down, the manufacturer states.

Rocket 10-IP is said to be suitable for applications requiring high tensile strength, ductility, and X-ray quality such as high-pressure mild steel piping, and structural steel work.

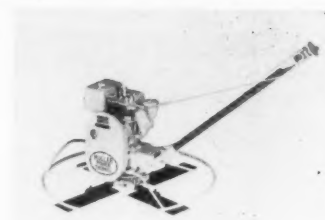
For further information write to the Hobart Bros. Co., Dept. C&E, Hobart Square, Troy, Ohio, or use the Request Card at page 18. Circle No. 111.

Improved power trowels have adjustable handle

An improvement in its line of power trowels is announced by the Muller Machinery Co., Inc. This consists of an adjustable handle making it possible for the operator to adjust to the height most convenient to him.

Another feature provides an adjustment for maintaining the blades constantly in a flat position with relation to the work, insuring contact over the entire surface of the blade.

These new improvements are incorporated in all four sizes of Muller power trowels—24, 29, 34, and 44 inches. All models now have four blades which, according to the manufacturer, provide easier operation



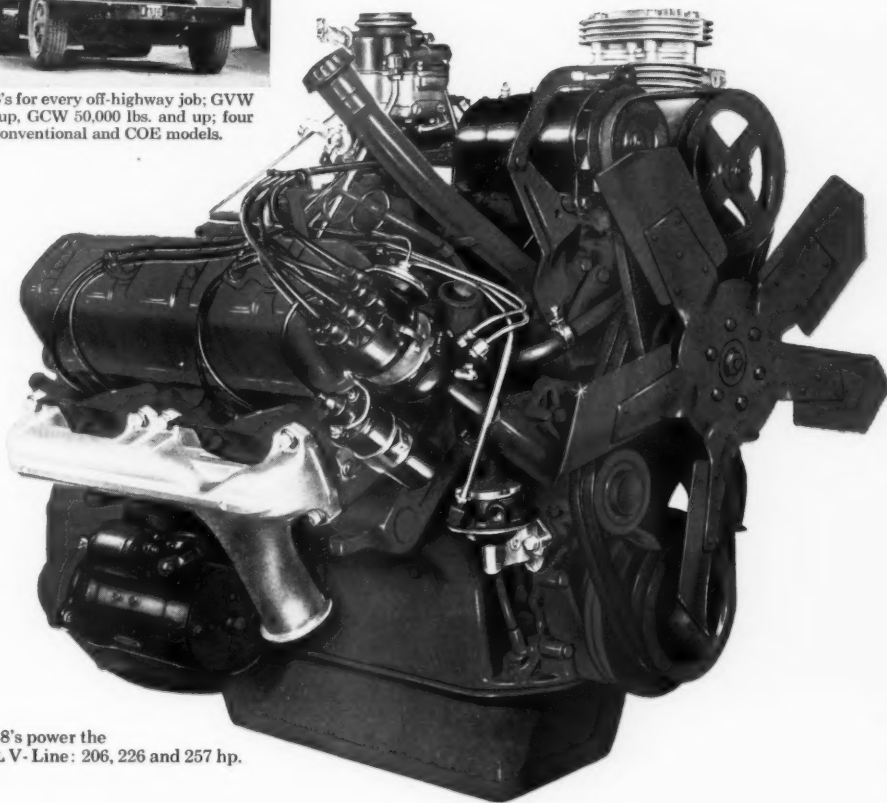
without the necessity of fighting eccentric motion.

For further information write to Muller Machinery Co., Inc., Dept. C&E, P. O. Box 248, Metuchen, N. J., or use the Request Card at page 18. Circle No. 13.



Heavy-duty V-8's for every off-highway job; GVW 24,000 lbs. and up, GCW 50,000 lbs. and up; four and six-wheel; conventional and COE models.

Most GO under any truck hood!



Three great V-8's power the INTERNATIONAL V-Line: 206, 226 and 257 hp.

INTERNATIONAL HEAVY-DUTY V-8's

Introduced last year—and smashing performance records ever since—INTERNATIONAL Heavy-Duty V-8's give you the most productive V-8 power in any truck.

Make more trips on short hauls! Save more time on long hauls! Get your loads moving faster, keep them rolling with less

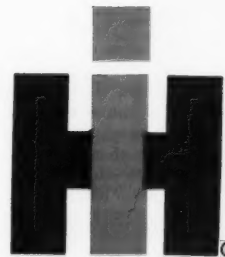
shifting. More ton-miles per gallon, too.

INTERNATIONAL V-8's make more money for their users because they do what other trucks cannot. Get the facts today from your nearby INTERNATIONAL Truck Dealer or Branch. International Harvester Company, Chicago, Illinois.

Fleet cost records prove

INTERNATIONAL TRUCKS cost least to own!

For more facts, use Request Card at page 18 and circle No. 281



Motor Trucks, Crawler Tractors
Construction Equipment,
McCormick® Farm Equipment
and Farmall® Tractors



Starting with any rough graded area, the new Viking roller blade reportedly will do a complete finish job. It scarifies, levels, rakes, seeds, and fertilizes. By virtue of its floating nature, it shears off high spots and fills in low areas automatically, without operator adjustment. For further information write to the **Viking Mfg. Co.**, Dept. C&E, P. O. Box 342, Manhattan, Kans., or use the Request Card at page 18. Circle No. 22.



AVAILABLE NOW! Granco Steel Products Company, leading building-products manufacturer in the Midwest, introduces new deep-beam Guard Rail for highways and bridges—available through distributors in principal cities.

HI-STRENGTH VISUAL BARRIER. Tough carbon steel. Corrugated shape. Acts as a continuous impact-resistant beam. Highways—12-gage; bridges—10-gage. Force of collision is absorbed by posts on both sides of the impact. Highly visible, reflects light day and night.

GREATER SAFETY. Granco Guard Rail reduces highway hazards, minimizes serious accidents and road "hogging," inspires driver confidence, channels out-of-control vehicles back onto road with least damage, lessens danger to other cars.

NO POCKETING! Guard Rail deflects cars *parallel* to roadway, can't trap them in a collapsing pocket (see drawing).



Beam strength and height prevent cars from hurtling over or going under rail. Flared end sections help prevent cars from hitting the end of a rail head on.

INTERCHANGEABLE SECTIONS. Standardized units have been adopted by American Association of State Highway Officials. Damaged sections do not impair efficiency of undamaged sections, may be rolled out and re-used.

ECONOMICAL. Sections nest conveniently for compact shipment, are easy to handle and install. Accessories are furnished with rail. Granco Guard Rail is painted with a rust-inhibitive primer, uniformly applied by "flow coating" and then baked to a hard-enamel finish.

IDEAL FOR BRIDGES. Granco Guard Rail provides a safe approach, permits maximum use of roadway, reduces center-line crowding, protects trusses.

NEW PRODUCT MANUAL! Contains eight pages of application photographs, standard drawings, specifications, curving data, installation instructions and facts on non-highway use. **WRITE FOR YOUR FREE COPY TODAY.** Attn.: Dept. CO-72.



GRANCO® STEEL PRODUCTS CO.
A Subsidiary of GRANITE CITY STEEL COMPANY
6506 N. Broadway, St. Louis 15, Missouri
Executive Offices: Granite City, Illinois
DISTRICT OFFICES: St. Louis • Kansas City • Cincinnati
Dallas • Houston • Chicago • Minneapolis • Atlanta
San Francisco

For more facts, use Request Card at page 18 and circle No. 282

Announce new truck hitch for equipment towing

Its new hitch for towing equipment is announced by The Burch Corp.

Designated Quick-Mount, the hitch is said to be easily and quickly attached to practically any standard dump truck without the need of drilling, cutting, or welding the truck chassis. The slotted attaching plates are slipped over the chassis frame channel flanges and securely locked in place by simply tightening four heavy set screws and lock nuts, the manufacturer reports.

The towing bar has eight position adjustments, making it possible to vary the distance between the truck and piece of towed equipment to suit any operating or towing condition. Also, the bar will accommodate equipment with two hitches, such as bituminous pavers and spreaders which must be towed in perfect alignment with the truck.

For further information write to The Burch Corp., Dept. C&E, 326 S. Thoman St., Crestline, Ohio, or use the Request Card at page 18. Circle No. 136.

New crawler equipment for shaft, tunnel work

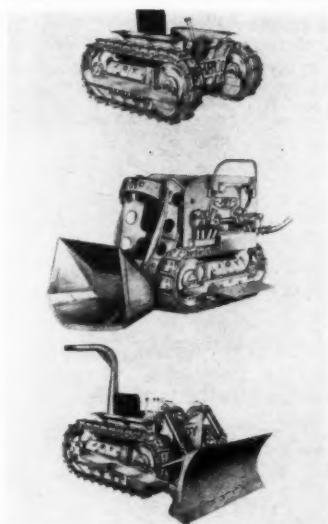
A new series of crawler equipment for shaft and tunnel excavation, consisting of an overhead shovel loader, a bulldozer, and a utility tractor, is announced by the Joy Mfg. Co.

Designated the JSL-7 shovel loader, JMD-7 mining dozer, and JMT-7 mining tractor, the machines come with either air or electric drive. With separate motors and independent track control for each track, one track can run forward and the other reverse to permit gradual or pivot turns or complete reversals within the machine radius. The equipment can be tailored for virtually any headroom or loading-height requirements.

According to the manufacturer, the shovel loader can load 2 to 4 tons per minute. It can muck in round or rectangular shafts and takes over loading in the tunnel when the shaft reaches bottom. Buckets ranging in size from 5 to 11½ cubic feet are available.

In tunnel construction, the JMD-7 dozer cleans up invert sections before

CONTRACTORS AND ENGINEERS



This new Joy series of crawler equipment for shaft and tunnel excavation can be tailored for virtually any headroom or loading-height requirements. Consisting of a utility tractor, overhead shovel loader, and bulldozer, the machines come with either air or electric drive.

concrete is placed. It is used for cleaning out old, silt-laden water and sewage tunnels.

With various other attachments the tractor can also be used as a full-face drill jumbo, roof bolter, front-end loader, backhoe, scaler, or fork lift. It has a 12,080-pound drawbar pull.

For further information write to the Joy Mfg. Co., Dept. C&E, 333 Henry Oliver Bldg., Pittsburgh 22, Pa., or use the Request Card at page 18. Circle No. 109.

Submersible pump handles dirt, grit, other solids

A new pump for use in heavy-duty water-pumping operations where dirt, grit, or other solids are contained in the water is announced by Sumo Pumps, Inc.

Designated the Sumo electrical submersible drainer pump, and designed to handle water containing up to 20 per cent solids, the pump operates either partly or completely submerged. A built-in thermostatic cut-off protects the motor against damage from overheating, obstructions, or overloading. A built-in automatic reset restarts the pump when obstructions are removed or overloading is relieved.

The pump motor operates in a factory-sealed oil bath, and is cooled by discharge water. This heavy-duty, squirrel cage, three-phase 60-cycle submersible type motor is rated at 7½ horsepower.

The single-stage centrifugal type pump has a closed impeller mounted directly on the motor shaft. Specially designed back blades keep foreign matter from the motor seal. A ¾-inch mesh stainless steel screen protects the pump inlet.

The pump has a capacity of 460 gpm at a 15-foot head; with a 70-foot head, it will handle 145 gpm.

For further information write to Sumo Pumps, Inc., Dept. C&E, 23 Brown House Road, Stamford, Conn., or use the Request Card at page 18. Circle No. 171.

Designed to operate as two 8 to 10-yard bottom-dump units in train, the Clement trailer can jackknife-turn in as little as 31 feet. Cab-operated controls and air-powered full width spreader gates permit either trailer to dump-on-the-run for full dump or windrow.

A train dolly converts the second unit to an independent trailer. Every wheel, including fifth wheel dolly, is equipped with built-in electrical and air-connected air brakes. For further information about Clement bonus loader dual trailers, write to Clement Braswell, Inc., Dept C&E, Louisiana Bank Bldg., Shreveport, La., or use the Request Card at page 18. Circle No. 52



NEW Black & Decker No. 16 NIBBLER



NEW Black & Decker No. 16 SHEAR

Two New B&D Tools speed up sheet metal jobs!

Faster, lighter, easier handling, POWER-BUILT and packed with features

Whether you need the speed of shears or the more precise performance of nibblers—you'll find a lot to like in the new Black & Decker No. 16 Shear and No. 16 Nibbler.

By actual test, they're faster and longer-lived than competitive tools. Their lighter weight means easier handling. Their centrifugal fans give cooler running. Each has exclusive construction features to stand up under the shock of sheet metal cutting.

Try these new tools at your nearby Black & Decker distributor. There's a No. 12 Shear, too, for heavier work. For full details on new features, write to: THE BLACK & DECKER MFG. CO., Dept. 1311, Towson 4, Maryland. (In Canada: P. O. Box 278, Brockville, Ontario.)

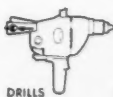


Leading Distributors Everywhere Sell



Black & Decker

Quality Electric Tools—Power-Built to set the pace.



DRILLS



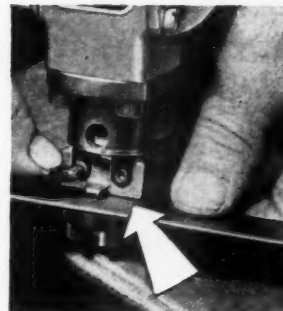
BENCH GRINDERS



SANDERS

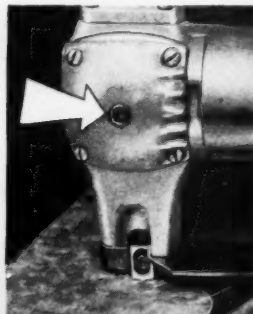
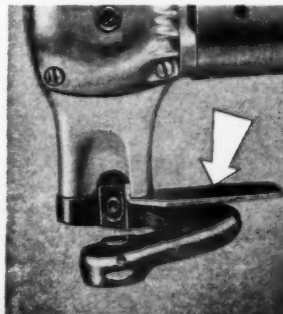


SERVICE



UP TO 3 TIMES FASTER than competition, new B&D Nibbler has twice the life, 20-30% less weight, reversible punch. Adjustable stripper plate (left), smaller diameter (right) are extra features.

50% FASTER than competition, new B&D Shear has one-third less weight than closest competitor, lasts much longer. Deflector plate prevents curling of material. Adjusting screw allows quick positioning of blade.





Heat and steam for a variety of applications are supplied by the Tankar steam heater. The unit is completely automatic, and its operation is said to be fool-proof and simple. Other features of the Tankar steam heater include low fuel consumption and maximum thermal efficiency. For further information write to Littleford Bros., Inc., Dept. C&E, 443-457 E. Pearl St., Cincinnati 2, Ohio, or use the Request Card at page 18. Circle No. 42.



Bores 1 to 10 ft. diameter holes as deep as 200 ft.

Drill caisson pier holes
Dig and shape belled footings
Pre-bore concrete piles
Explore for gravel deposits
Bore air shafts for tunnels
Dig manholes, cesspools
Precision Excavating
Sample underground deposits

ONLY A CALWELD can do all these excavating jobs. It digs big... holes up to 10 ft. in dia. It digs fast... down to 45 ft. in depth per hour. It digs deep... down to 200 feet. It digs with precision... absolute vertical holes to exact specification. It travels... on its own truck chassis. It's one man operated and it makes money for any contractor, large or small.

Write for information.



CALWELD, INC.
7222 E. Slauson Ave.
Los Angeles, Calif.

CALWELD
BUCKET TYPE
EARTH DRILLS

For more facts, use Request Card at page 18 and circle No. 284

Announce new 36-inch, 4-blade power troweler

A new 36-inch power troweler is announced by the White Mfg. Co.

Designated Model T-4, the new unit has a 2 $\frac{3}{4}$ -hp engine powering four combination float and finish blades. The blades can be removed in seconds for easy cleaning or for reversal for extra wear without the use of tools, according to the manufacturer.

The ring unlatches easily for moving the troweler through narrow doors on its retractable wheel. There is complete one-man portability, with ring and blades either on or off.

For further information, write to the White Mfg. Co., Dept. C&E, 1227



W. Beardsley Ave., Elkhart 9, Ind., or use the Request Card at page 18. Circle No. 7.

New line of telescopic hydraulic hoists

Micro-Tel hoist features tube heads that are approximately twice the thickness of the tube wall section. Bolts or threaded collars in the tube heads are eliminated and the tubes cannot bell or flare at the ends.



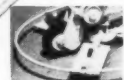
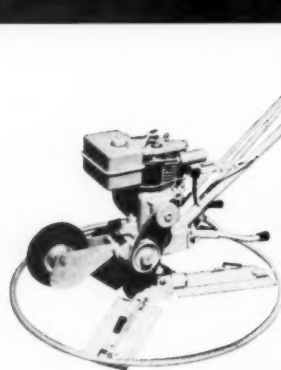
A new line of telescopic hydraulic hoists is announced by The Perfection Steel Body Co.

Designated the Micro-Tel hoists, the units feature tube heads that are approximately twice the thickness of the tube wall section. Bolts or threaded collars in the tube heads are eliminated, and the tubes cannot bell

or flare at the ends, according to the manufacturer.

To give the maximum rigidity when tubes are extended in raised position, stop rings on each tube are positioned to give an extensive overlapping of tube-within-tube.

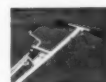
Non-scarring bearings support the lower ends of each tube, and are re-



Retractable wheel, up to trowel, down to move.



Remove blades and ring in seconds... for cleaning, changing blades, or moving through doorways.



Adjust blade pitch during rotation from handle. Safety throttle control stops rotation if operator lets go handle.

PORTABILITY, patented, exclusive! PERFORMANCE, unbeatable! PRICE, comparable to trowelers without these features! Model T-1, 36" diameter, Patent No. 2,621,568.

White MANUFACTURING COMPANY
ELKHART 9, INDIANA

For more facts, use Request Card at page 18 and circle No. 285

CONTRACTORS AND ENGINEERS

placeable without the need for special tools. Special bronze sleeve bearings are used in the tube heads.

Other features of Micro-Tel hoists include an automatic shut-off cable which pulls the pump lever into hold position when the body reaches a set dumping angle. A pump relief valve safeguards the hydraulic system from damaging shock pressures.

The hoists are available in both single front-mount and twin-cylinder in-or-out mount for use on either trucks or trailers of all types and capacities.

For further information write to The Perfection Steel Body Co., Dept. C&E, Galion, Ohio, or use the Request Card at page 18. Circle No. 16.

Sealant for nuts, bolts cuts equipment downtime

Its new liquid lock washer kit is announced by the American Sealants Co.

Called Loctite sealant, this liquid plastic is said to set up nuts and bolts so securely that no amount of vibration will shake them loose, yet permit them to be removed with ordinary tools. It is designed to replace lock washers and lock nuts, giving up to five times the removal torque of these devices, according to the manufacturer.

For further information write to the American Sealants Co., Dept. C&E, 103 Woodbine St., Hartford 6, Conn., or use the Request Card at page 18. Circle No. 31.

New stud-welding gun is lightweight

A new small stud-welding gun is announced by the Nelson Stud Welding Division of Gregory Industries, Inc.

Designated Nelson NS-10, the plastic gun weighs less than four pounds and measures only nine inches long. It is said to be exceptionally easy to handle and, despite its small size, to weld all studs to 1/2 inch in diameter.

The NS-10 uses the regular Nelson line of studs, ferrules, and welding accessories.

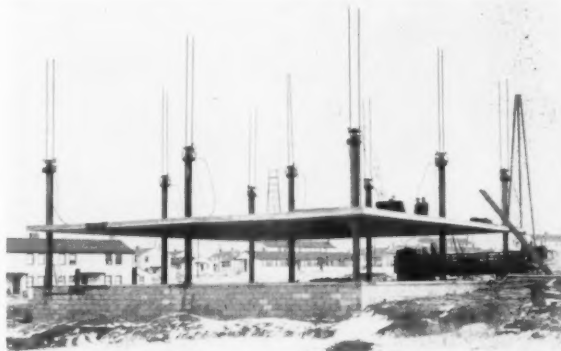
For further information write to the Nelson Stud Welding Division, Gregory Industries, Inc., Dept. C&E, 2715 Toledo Ave., Lorain, Ohio, or use the Request Card at page 18. Circle No. 89.



The Nelson NS-10.

NOVEMBER, 1957

The Youtz-Slick lift slab method of construction is said to offer many advantages during cold winter months. The concrete slabs are poured and stacked one on top of the other, with the operation unhampered by weather conditions often too severe for formed-in-place construction, according to the manufacturer. It is pointed out that once the slabs are in place, the workmen have a roof over their heads, as well as a readily accessible storage area for materials. For further information about this method of construction, write to the United States Lift Slab Corp., Dept. C&E, 8546 Broadway, San Antonio 9, Texas, or use the Request Card at page 18. Circle No. 133.



AUSTIN-WESTERN HYDRAULIC CRANE



A-W hydraulic crane setting 24 in. x 20 ft. drain pipe on highway job near Philadelphia

JAS. J. SKELLY, INC., Media, Pa., REPORTS:

A-W crane's live boom and maneuverability speed construction operations



Paul Skelly says: "Our present job is located in Springfield Township near Philadelphia, and includes widening and repaving about 3 miles of road in a residential area. We purchased an Austin-Western hydraulic crane with 4-wheel drive and 4-wheel steer at the beginning of the job, because we felt it would help us with many

lifting and hauling jobs where other cranes would find it hard going. We've never made a better investment than with our A-W."

Great for laying pipe. "We've used the A-W to lay all kinds of pipe—everything from 15 in. concrete drains to 43 in. x 27 ft. corrugated arch. The unit is so accurate that we can lower pipe 1/4 in. or 1/8 in. at a time, which means faster and better fitting. Regardless of size, we can lay 5 or 6 joints of pipe in the same time it would have taken us to lay one joint by ordinary methods. We also find the A-W speeds up the unloading, placing and reloading of concrete forms to a remarkable degree."

Sees wide use by contractors. "Our experience with the A-W has convinced us that its use by contractors should increase by leaps and bounds in the next few years. In our business, time is a big factor in profits, and this machine really saves time."

For more information on this remarkable crane, fill out and mail the coupon today. You'll be glad you did.

AUSTIN-WESTERN
629 Farnsworth Avenue, Aurora, Illinois
Please send complete information on the A-W hydraulic crane.

Name
Title
Company
Street
City Zone State

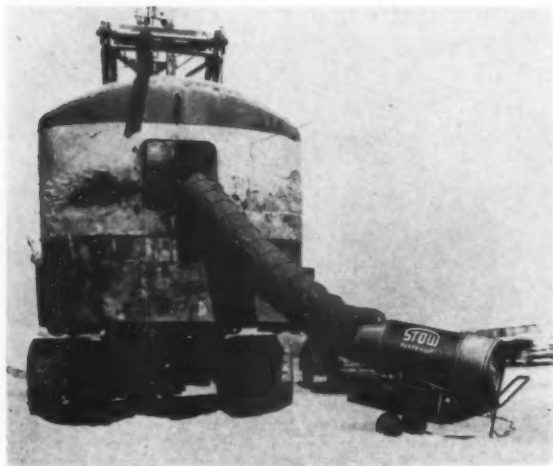


Power Graders • Motor Sweepers • Road Rollers • Hydraulic Cranes

AUSTIN-WESTERN
BALDWIN-LIMA-HAMILTON
Construction Equipment Division
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Madsen • Pelton

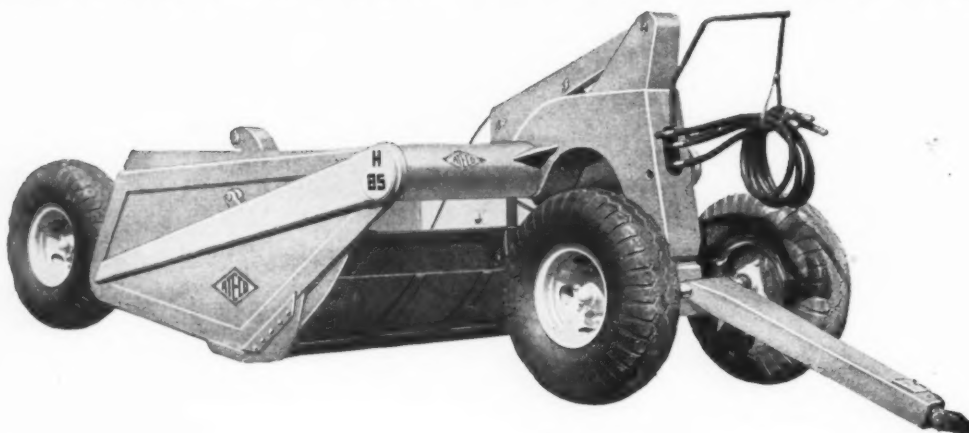
AURORA, ILLINOIS, U.S.A.

For more facts, use coupon, or Request Card at page 18 and circle No. 280



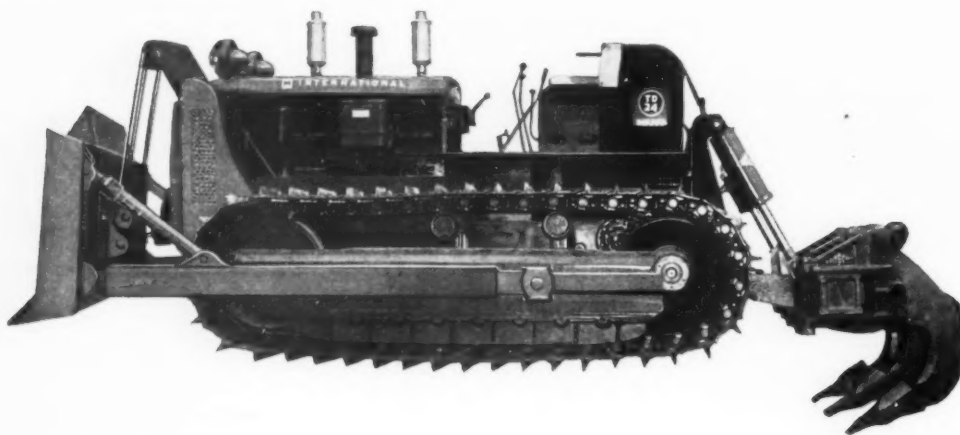
A medium-capacity, space heater, the Porto-Heat Model 120 is said to produce maximum heat without fumes or odor. Small, light, and compact, the Model 120 delivers 120,000 Btu's per hour at a rate of 950 cubic feet of air per minute, and burns 0.85 gallons of low cost fuel per hour, according to the manufacturer. Built-in safety features include an automatic fuel cutoff in case of power failure. For further information about this space heater, write to the **Stow Mfg. Co.**, Dept. C&E, 443 State St., Binghamton, N. Y., or use the Request Card at page 18. Circle No. 65.

HERE'S HOW TO MOVE MORE EARTH AT LESS COST



ATECO 4-wheel scrapers get heaping loads quickly. Loading and ejection are positive. High road clearances and elimination of overhead structures and dead-weight auxiliary frames cut tractor wear. Center of gravity is

lower—stability is increased. Initial cost is low. See your IH dealer or write us for details on scrapers from 6 to 10 cubic yard capacity.



Many contractors are moving rock at dirt prices by preparing the area with the tractor-mounted Greenville Rock Ripper. This big unit rips rock, frozen earth, and other tough materials to depths of 24". The shanks swivel 30°. This swivel action, combined with the special shank contour, exerts a live, prying action that

wedges into and splits rock like a jackhammer. Ripper is always in position while the tractor remains free for bulldozing and pushloading when needed. Greenville rippers are available for IH TD-14, TD-18, and TD-24 tractors. See your IH dealer or write to us.



GREENVILLE

STEEL CAR COMPANY

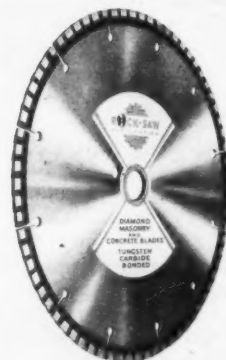
ATECO DIVISION
Greenville, Pennsylvania

For more facts, use Request Card at page 18 and circle No. 287

New diamond saw blades feature corrugated edge

Corrugated diamond saw blades are available from the Rock-Saw Corp.

With this corrugated edge, a regular 12-inch blade now has 144 additional hitting points. This increased number of hitting points results not only in greater cutting ability but the



corrugations also provide additional outlets for sludge release and increased coolant circulation, according to the manufacturer.

A special improved tungsten-carbide matrix is used in these corrugated blades to insure longer life and greater strength. The blades are recommended for cutting concrete, cinder block, stone, brick, tile, and other masonry products, and reportedly can be designed to fit any saw on the market.

For further information write to the Rock-Saw Corp., Dept. C&E, 38-25 Greenpoint Ave., Long Island City 1, N. Y., or use the Request Card at page 18. Circle No. 9.

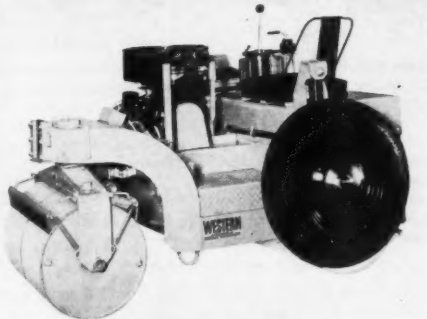
Rollers are portable with no trailer required

Three sizes of its Hydrotrail roller are offered by the Western Equipment Division of the Douglas Motors Corp.

Available in 1, 1½, and 2-ton models, the roller features hydraulically retractable trailing wheels, permitting it to be moved from job to job without loading on truck or trailer. According to the manufacturer, the unit is balanced for easy towing by

CONTRACTORS AND ENGINEERS

The Hydrotrail roller features a hydraulic pump that lowers trailing wheels quickly and easily, eliminating the need for loading onto truck or trailer. The unit is available in 1, 1½, and 2-ton models.



Adjustable-height gantry has aluminum-alloy I-beam

An adjustable-height gantry said to be light enough to be erected by just two men is announced by the B. E. Wallace Products Co.

With a maximum height of over 14 feet and a 6-foot leg adjustment, the unit is designed to permit setups over high obstructions or where headroom is low. It also permits erection in cramped quarters where a different adjustment might be required for each leg.

The 10-foot-long aluminum alloy

I-beam weighs only 65 pounds. Each of the end supports is a complete tripod, which reportedly can be removed from the I-beam in a matter of seconds.

According to the manufacturer, the tripods tuck neatly against the I-beam for easy hauling and compact storage.

For further information write to the B. E. Wallace Products Co., Dept. C&E, Exton, Pa., or use the Request Card at page 18. Circle No. 104.

car or pickup truck.

Over-all width and length of the machine are 37×74 inches. The transmission is a heavy-duty oversize multiple disk type, with capacity varying with tonnage. A single lever moves the machine in both forward and reverse. All models are powered by a Briggs & Stratton engine.

For further information write to the Western Equipment Division, Douglas Motors Corp., Dept. C&E, 2025 W. Clybourn St., Milwaukee, Wis., or use the Request Card at page 18. Circle No. 44.

New engine announced for power, light plants

A new lightweight engine for use in powering the firm's power and light plants is announced by the Universal Motor Co.

The new unit is designed for use on 6, 12, and 32-volt battery chargers, as well as on 110-volt ac models from 400 to 700 watts.

According to the manufacturer, alloy inserts used on both intake and exhaust valves increase service life, and improved volumetric efficiency is obtained through use of special high-lift cams.

For further information write to the Universal Motor Co., Dept. C&E, 428 Universal Drive, Oshkosh, Wis., or use the Request Card at page 18. Circle No. 99.

High-speed whiteprinter ups tracing reproduction

Its new, high-speed whiteprinter said to effect a marked increase in average print production is announced by the Charles Bruning Co., Inc.

Designated Copyflex 575, the machine is equipped with a 5,000 to 7,500-watt selective switch controlled lamp, an adjustable shield, a machine speed of 75 fpm, and a 46-inch printing width.

The large printing width provides side-by-side feeding of small and medium-sized tracings, which after exposure, are automatically stacked in a convenient tracing stacking tray. The prints, too, are automatically stacked in one of the print delivery trays—front or rear, at the operator's discretion.

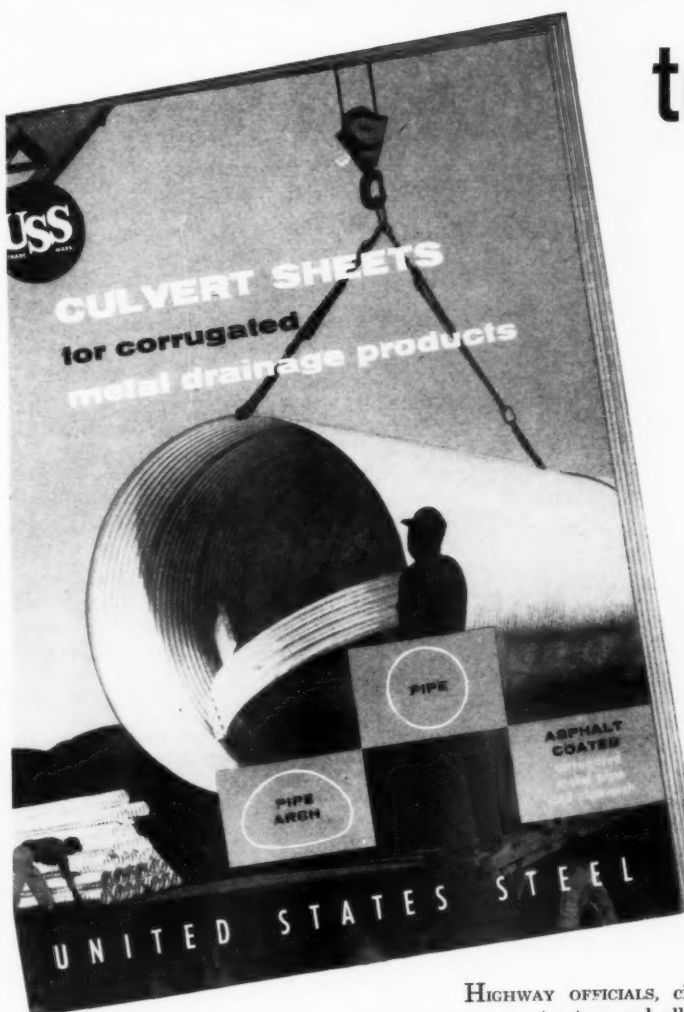
For further information write to Charles Bruning Co., Inc., Dept. C&E, 4700 Montrose Ave., Chicago 41, Ill., or use the Request Card at page 18. Circle No. 115.

For more facts, circle No. 288—

This new booklet tells you how to build better drainage structures

...FASTER
...CHEAPER

it's Free



NOTE: For larger drainage structures, USS AmBridge Sectional Plate is available in a complete range of standard sizes to satisfy design requirements for various types of terrain and waterway openings. These flexible structures with their heavy-duty corrugations can resist extremely large externally applied loads. For details, write American Bridge Division, Room 1801, 525 William Penn Place, Pittsburgh 30, Pa.

HIGHWAY OFFICIALS, civil engineers, contractors and all who are concerned with road building and other types of construction involving drainage problems will certainly want a copy of this comprehensive 28-page catalog.

This new booklet not only describes metal drainage products fabricated from USS Galvanized Culvert Sheets, but also contains helpful suggestions for installing these strong, long-lasting, low-cost corrugated metal culverts.

Drainage structures fabricated from USS Galvanized Culvert Sheets readily absorb the impact and vibration of modern traffic and can carry proportionately heavier loads than rigid-type structures. They are not subject to breakage, require no maintenance, cost less to install and are easy to ship and handle.

For your free copy of this valuable booklet, send your request to United States Steel Corporation, Room 2801, 525 William Penn Place, Pittsburgh 30, Pa.

USS GALVANIZED CULVERT SHEETS



United States Steel Corporation, Pittsburgh • Columbia-Geneva Steel Division, San Francisco
Tennessee Coal & Iron Division, Fairfield, Ala. • United States Steel Export Company, New York

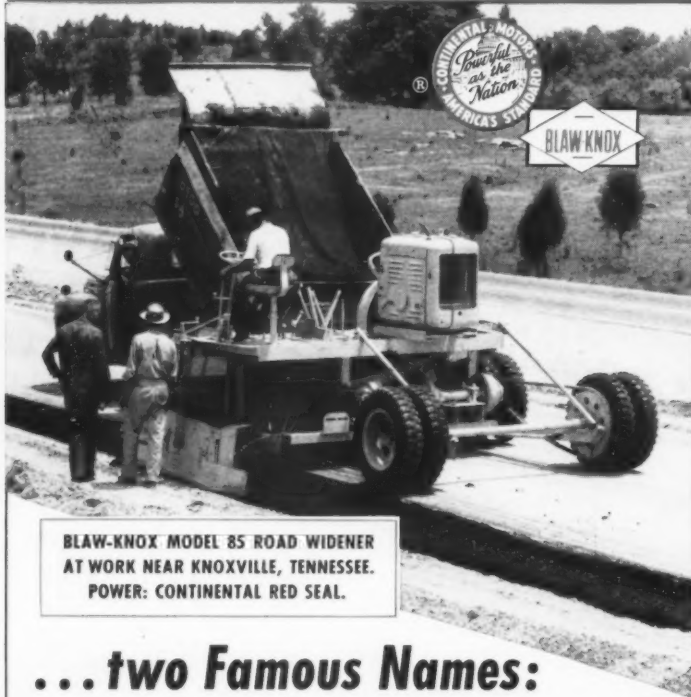


UNITED STATES STEEL



Frozen ground and ice give way to the Tilt-Crown bulldozer for use with Model 800 and 1000 Case TerraTrac crawler tractors. The operator can drop either end of the blade 14 inches from center by hydraulic power without leaving his seat, and while the tractor is in motion. Extra bite for ripping through frost is furnished by the sharp cast-steel blade tips. Constant hydraulic down-pressure is maintained by powerful twin lift cylinders. For further information about the Tilt-Crown bulldozer, write to the J. I. Case Co., Industrial Division, Dept. C&E, Racine, Wis., or use the Request Card at page 18. Circle No. 36.

Teamed for DEPENDABILITY



BLAW-KNOX MODEL 85 ROAD WIDENER
AT WORK NEAR KNOXVILLE, TENNESSEE.
POWER: CONTINENTAL RED SEAL.

...two Famous Names: Continental and Blaw-Knox

Like so many other leading builders of construction machinery, Blaw-Knox offers its customers the tangible PLUS-value of Continental power. Continental engineers each power plant to the specialized requirements of its job, for highest dependability, longest trouble-free life.

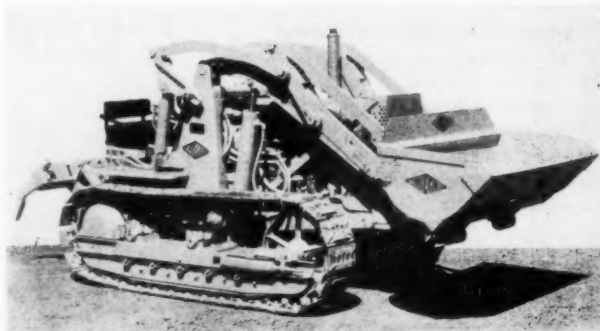
WORLD'S LEADING INDEPENDENT MANUFACTURER
OF INTERNAL COMBUSTION ENGINES, CONTINENTAL
MOTORS OPERATES PLANTS IN ATLANTA, DALLAS, DETROIT,
MILWAUKEE, MUSKEGON, AND TOLEDO, AND IN ST. THOMAS,
ONT., PRODUCING AIR-COOLED AND LIQUID-COOLED
ENGINES FOR USE ON LAND, AT SEA AND IN THE AIR.

Continental Motors Corporation

MUSKEGON • MICHIGAN

FACTORY-AUTHORIZED SERVICE AND GENUINE
RED SEAL PARTS ARE AVAILABLE EVERYWHERE

For more facts, use Request Card at page 18 and circle No. 289



The improved Ateco L-420C loader, designed for use with the John Deere 420C crawler tractor, includes among its many features ground-level tilt-back for maximum break-out power. Bucket capacity on the new unit is $\frac{7}{8}$ cubic yard.

Improved loader features high break-out power

Designed specifically for the John Deere 420C crawler tractor, a new version of the hydraulically-operated L-420C loader is announced by the American Tractor Equipment Corp.

According to the manufacturer, the new loader features increased ground-level tilt-back for exception-

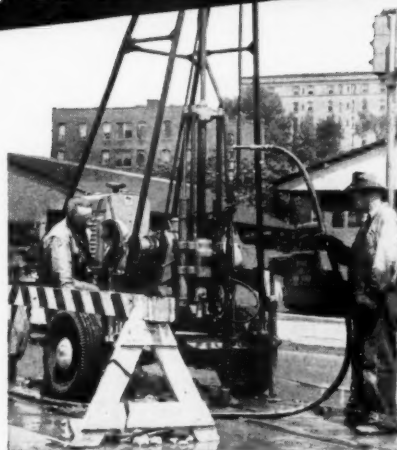
ally high break-out power, and a $\frac{7}{8}$ -cubic-yard bucket capacity, with reinforced lift arms to handle the larger bucket. Other features include replaceable bushings at all hinge points, increased track clearance, and an improved mounting method to increase stability and eliminate excess-

drilling for the highways of tomorrow

When it's better to be safe than sorry, engineers investigate underground conditions. And, that's exactly what this Acker TH drill is doing — drilling test holes over a walled-up section of the old Erie Canal preparatory to building an overhead express highway.

For low-cost, dependable sub-soil information, try an Acker on your next job. Several models available with power and type of mounting to best serve your requirements.

Write today for prices and Bulletin 30, C&E.



ACKER DRILL CO., Inc.

725 W. Lackawanna Avenue
Scranton, Penna.

a complete line of Diamond and Shot Core Drills, Drilling Accessories and Equipment

For more facts, use Request Card at page 18 and circle No. 290

CONTRACTORS AND ENGINEERS



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sive tractor strain and track wear.

The unit has a maximum lift of 9 feet 7 inches. Its 5-foot-wide bucket dumps at a 50-degree angle; maximum tilt-back at ground level is 32 degrees.

Scarifier-counterweight, lift fork, and crane attachments are available.

For further information write to the American Tractor Equipment Corp., Dept. C&E, 9131 San Leandro Blvd., Oakland 3, Calif., or use the Request Card at page 18. Circle No. 59.

New line of high-speed centrifugal pumps

A new line of high-speed, high-head centrifugal pumps for general water service is announced by the Gardner-Denver Co.

The new Model BH pumps are available in four sizes—a 1-inch model with capacities to 150 gpm; a 1½-inch model with capacities to 220 gpm; a 2-inch model with capacities to 440 gpm; and a 3-inch model with capacities to 520 gpm.

Features include stainless steel shafts, oil-lubricated heavy-duty ball bearings, mechanical seals, accurately contoured casings, and hydraulically balanced bronze impellers.

For further information write to the Gardner-Denver Co., Dept. C&E, S. Front St., Quincy, Ill., or use the Request Card at page 18. Circle No. 156.

Angular contact swivel unhampered by cold

Its Miller angular contact swivel is available from the General Machine & Welding Works, Inc.

According to the manufacturer, the ball-bearing design of the Miller swivel provides a safety factor of more than 5 to 1 over the recommended working load.

The sealed bearing chamber and the wide-temperature-range grease are said to insure perfect performance in temperatures to minus 65 degrees.

For further information write to the General Machine & Welding Works, Inc., Dept. C&E, 1100 E. Second St., Pomona, Calif., or use the Request Card at page 18. Circle No. 45.



Insulated safety link protects crane workers

An insulated safety link designed to prevent accidents caused by cranes contacting high-voltage wires is available from the E. D. Bullard Co.

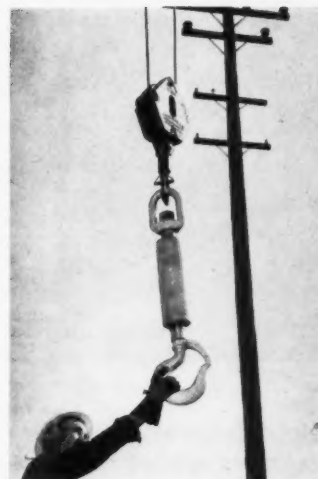
With this device, the crane boom and cable may be energized as much as 50,000 volts without danger to men handling the hook or load, the manufacturer reports.

Safety links will also isolate weldments from the hoisting mechanism while suspended for electrical welding, preventing the current from traveling up hoisting lines and returning to the ground through overhead suspensions.

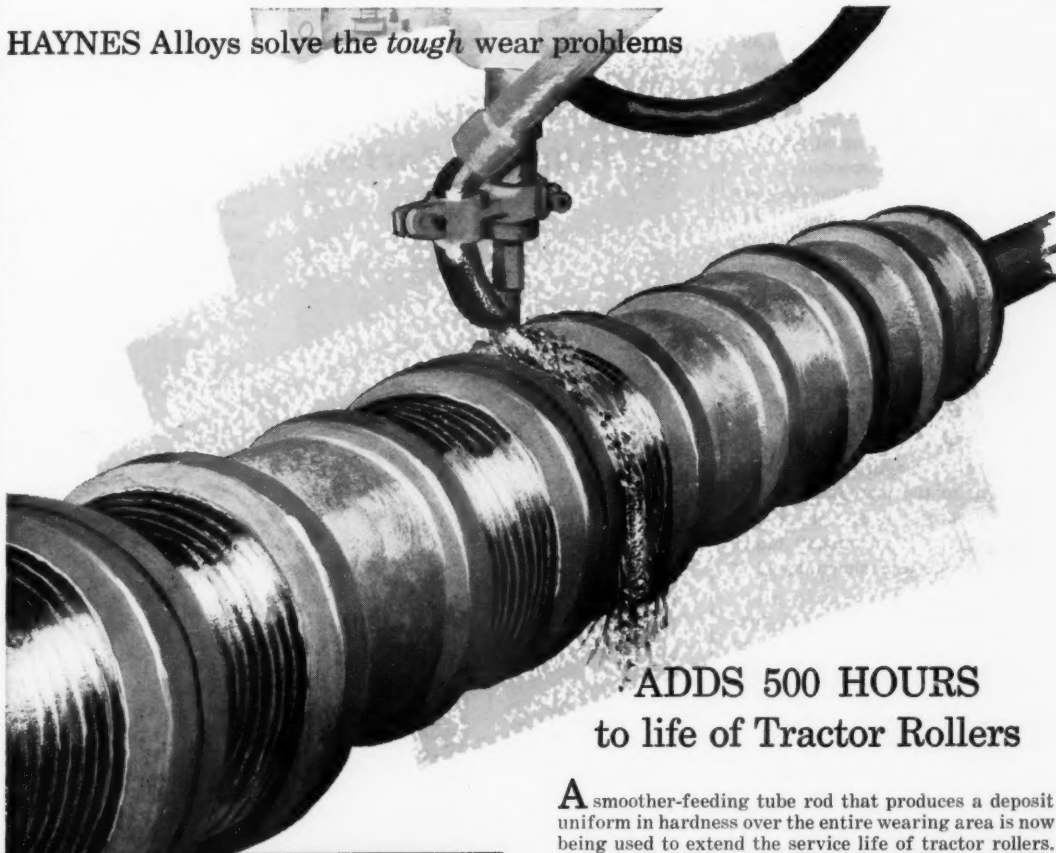
According to the manufacturer, there is no reduction in crane or hoist-lifting capacity through use of these links. All links are tested and rated at the same safe working loads as the hook they support.

The links are available in many sizes from ½ ton through 25 tons, with dielectric strength from 1 to 50 kv.

For further information write to the E. D. Bullard Co., Dept. C&E, 2680 Bridgeway, Sausalito, Calif., or use the Request Card that is bound in at page 18 of this issue. Circle No. 163.



HAYNES Alloys solve the tough wear problems



ADDS 500 HOURS to life of Tractor Rollers

A smoother-feeding tube rod that produces a deposit uniform in hardness over the entire wearing area is now being used to extend the service life of tractor rollers. A deposit of HAYNES newly developed Drawn Tube Rod in Coils gives the rollers an expected service life of 2500 hours—or uninterrupted operation for 1½ years! This is a life span 20 per cent longer than that of new unprotected rollers . . . and the worn areas can be hard-faced at about ½ the cost of a new roller shell.

There are 6 alloy compositions available in the new drawn tube form—varying from very tough and shock resistant to very hard and abrasion resistant. Write for full details on prices, compositions, and recommended uses.

HAYNES STELLITE COMPANY, Division of Union Carbide Corporation, Kokomo, Indiana. Sales offices in Chicago — Cleveland — Detroit — Houston — Los Angeles — New York and San Francisco.



HAYNES drawn tube rod in coils can be used with standard equipment without nozzle change . . . meet standard wire tolerances . . . withstand the same feed roll pressures as solid wire . . . and assure steadier deposition.

See...
or
Write...

Your local
Haynes Stellite Dealer

to
Haynes Stellite Company

The terms "Haynes" and "Union Carbide" are registered trade-marks of Union Carbide Corporation.

For more facts, use Request Card at page 18 and circle No. 291



New lightweight tractor features special tires

Its Terra-Tire tractor said to offer outstanding maneuverability and adaptability under all kinds of weather and ground conditions is announced by the Atwood Vacuum Machine Co.

The unit, with an average weight of 2,800 pounds, is designed for various horsepower and speeds.

Its four Goodyear Terra-Tires are 24 inches in diameter and 24 inches long. Air pressure is 5 psi in the front tires, which are unpowered and feature individual suspension. The rear tires are powered through a locking differential for maximum drawbar, and have an air pressure of 7 psi.

The unit has an 80-inch wheel-base, with 44-inch tread centers. Its turning circle has an 11-foot radius. According to the manufacturer, the transmission has 4 forward speeds and 1 reverse with driveshaft brake, and will obtain a maximum speed of 13.2 mph.

Dimensions of the Atwood machine are: length 116.75 inches; width 68.0 inches; height 47.5 inches. Its welded steel structural tubing frame is said to be easily adaptable for special applications.

For further information, write to the Atwood Vacuum Machine Co., Dept. C&E, 1404 Eddy Ave., Rockford, Ill., or use the Request Card at page 18. Circle No. 32.

New lightweight concrete impressive in tests

A new building material designated Durox gas concrete is announced by the U. S. Durox Corp., of Colorado.

Durox gas concrete is said to be a homogeneous, lightweight material of unusually high strength. The standard weights vary according to grade, from 25 to 45 pounds per cubic foot.

Due to its uniform cellular structure, Durox has a high water resistance, with absorption reportedly one fourth that of ordinary brick. According to the manufacturer, it is also frost-resistant, and has a thermal expansion of only 0.000004 inch from minus 58 to plus 212 degrees F.

For further information write to the U. S. Durox Corp. of Colorado, Dept. C&E, Englewood, Colo., or use the Request Card at page 18. Circle No. 157.

This Terra-Tire tractor features top maneuverability and adaptability under all kinds of weather and ground conditions. Designed for various horsepower and speeds, it has an average weight of 2,800 pounds.

Add three new blades to concrete-sawing line

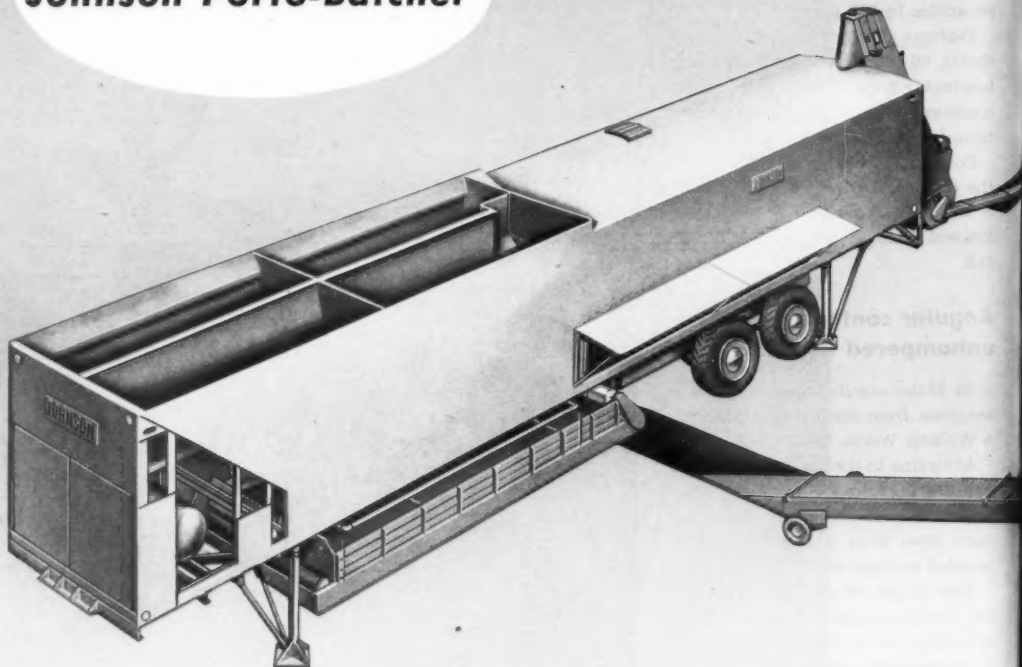
The addition of three new Tuffie reinforced abrasive blade specifications to its line of green concrete-sawing blades is announced by the Eveready BrikSaw Co.

These new Eveready Tuffies have four layers of Fiberglas reinforcement, two equally spaced through the middle, and two on each side at the hub. When the blade is securely fastened between the collars on a concrete saw, the two outer plies of reinforcement strengthen the blade from the collars outward, thus eliminating breakage.

The three new specifications, No.'s



NEW automatic batch plant Johnson Porto-Batcher®



Plant portability profitably cuts truck hauling costs . . .

On paving and structural concrete jobs, keep your haul distance short between plant and pouring area. It costs less to supply raw materials over longer distances to the plant, and keep your more expensive transit-mix or batch trucks operating on the short end of the haul. To do this, you need *on-the-job batching*, with convenience in moving plant from one site to the next.

Here's your opportunity

The portability and easy assembly of Johnson's new Porto-Batcher let you pick up and go — and set up at new site, ready to work, in as little as a day's time. You have 3 portable trailer units on wheels: main plant, discharge conveyor, and cement elevator — complete with 5th-wheel-plate or towing eye, brakes, lights, etc. Main trailer overall width is 8½ feet — height 12½ feet — length 44½ feet. Plant is ready to start producing in minimum time on

arrival at new site, because with the Porto-Batcher there's no complicated reassembly, heavy concrete pedestal foundations or high lifts necessary, as with conventional stationary plants.

80 to 100 batches an hour

Interlocked batch control with repeater gives accurate, push-button operation. You just set the weigh-beams and water-pointer for each material per batch — set the repeater for number of batches needed — press the starter button, and the Porto-Batcher weighs out exact number of batches automatically. Depending on size of trucks and batch quantities, you get 80 to 100 batches an hour! Want more facts and figures? Better call your Johnson distributor about Porto-Batcher or write for literature today.

C. S. JOHNSON Company
CHAMPAIGN, ILL. • STOCKTON, CALIF.
Koehring Subsidiary



CONCRETE PLANTS • BINS • BATCHERS • SILOS • ELEVATORS • CONVEYORS • RECEIVING HOPPER

1820, 1720, and 1620, are available in 14-inch diameters and are 3/16 inch thick.

For further information write to the Eveready BrikSaw Co., Dept. C&E, 1104 Union Ave., Kansas City 1, Mo., or use the Request Card at page 18. Circle No. 145.

Improved truck hoist has many new features

An improved version of its Uni-Link hoist is announced by the Schwartz Mfg. Co.

The new unit features increased lifting capacity, as well as greater structural strength by use of flange plates on the lifting assembly. Also,



lower hoist mounting permits easier mounting of the truck box.

The complete re-design of the pivot point fastening to body long beams eliminates welding, when mounting on the body. Moreover, according to

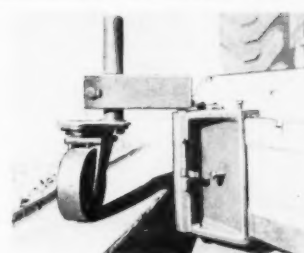
the manufacturer, re-location of the pivot point gives greater lifting stability than ever before. Further simplification of mounting is achieved by replacing the rubber hose with a tubular steel oil return line running along the hydraulic cylinder.

The new unit is available in both standard and conversion models.

For further information write to the Schwartz Mfg. Co., Dept. C&E, Lester Prairie, Minn., or use the Request Card at page 18. Circle No. 28.

Grading device increases speed, accuracy

Its Model 50 Micro-Grader for use on finish grading work is announced



by the Swanson Mfg. Co.

According to the manufacturer, with this device attached to the grader blade, the operator can bring the grade to exact finish with only one cut.

Easily adjustable for the depth of the cut desired—from a minus 2 inches to an approximate plus 9 inches—the Micro-Grader can be quickly and firmly fastened to the blade of the grader. Detaching or retracting the unit from use is also a simple, quick maneuver, the manufacturer reports.

Fabricated from heavy steel plate, the device is arc-welded for enduring strength and compactness of design. It is 24 inches high, 15 inches wide, and weighs 70 pounds.

For further information write to the Swanson Mfg. Co., Dept. C&E, 515 63rd St., San Diego, Calif., or use the Request Card at page 18. Circle No. 162.

New safety flasher offered in three models

A new Neo-Transistor warning light, said to emit 85 flashes per minute and be visible for one mile, is announced by the Neo-Flasher Mfg. Co.

The light will operate continuously for 2,200 hours without maintenance on only two lantern cell batteries, according to the manufacturer. It is designed without moving parts, and enclosed in a water-tight steel case.

The unit is available in three models: Model TR 1-100 with a 360-degree lens and 8-beam candle-power brilliance; Model TR 0-100, with a 2-directional lens, also with a brilliance of 8-beam candle power; and the Model TR 4-100, with a 1-directional, reflectorized head, and a brilliance of 15 candle power.

For further information write to the Neo-Flasher Mfg. Co., Dept. C&E, 3210 Valhalla Drive, Burbank, Calif., or use the Request Card at page 18. Circle No. 168.



ant on wheels

Johnson wheel-mounted Porto-Batcher combines portability, easy assembly, big capacity.

Handles 4 aggregates, weighs cement on separate scale.

Capacity, 4-compartment aggregate bin: 39 cu. yds. heaped — 46 yds. with 12" sideboards.

700-gal. built-in water tank.

240-bbl. cement compartment, fed by portable elevator.

230-bbl.-per-hour cement elevator has boot hopper, or screw conveyor; undertrack shrouds, or truck hopper.

Enclosed discharge conveyor is available in two styles: with 11'6" clearance above ground-line for transit-mix trucks — and with 8'10" clearance for batch trucks. Water piping has hose connection to batcher trailer.

Batcher concrete as with

Porto-Batcher has fully-automatic, interlocked batch control, with repeater.

4 aggregates are weighed in 2 hoppers — 2 aggregates in each hopper.

2 aggregate scales have two 2,000-pound weigh-beams each.

Cement is weighed in a separate, covered, hopper — equipped with 1,000-pound weigh-beam scale.

All internal wiring is factory-installed, complete with starters, circuit breakers in panel, motor controls, etc.

Wide-wheel Trenchliner® added to Parsons line

Developed to meet the demand for wide work range in a medium-size machine, Parsons new 170 has extra-wide wheel frame. It digs 20 to 32 in. wide, 5 3/4 ft. deep. Has hydraulic wheel-hoist on power-tilt mast. Spoil conveyor is hydraulically-driven. Belt speeds are independent of digging wheel speeds — easily handle maximum yardages from the wide wheel. Larger and smaller size Parsons Trenchliners also available — in all types.

PARSONS • Newton, Iowa
Division of Koehring



Light-weight fork lift has 1/2-ton load capacity

Kwik-Mix S-10 Moto-Bug® with fork lift weighs only 1575 lbs., works over light ramps, scaffolds, floors where heavier lift trucks can't safely travel. It lifts 1/2-ton load up to 6-foot height. Forks are 20 or 30 inches long, and adjustable from 6 to 32 inches wide. Tilting mast optional. Fork lift is interchangeable with 10 or 15 cu. ft. hopper, 3/4-ton platform. Bigger Moto-Bug available; also concrete, plaster-mortar and bituminous mixers.

KWIK-MIX • Port Washington, Wis.
Division of Koehring



1-second gravity-dump speeds haul cycles

There's no waiting for slow-acting body-boosts on this job. Koehring Dumptor drives up, body forward — operator trips the body-release lever, and gravity dumps the 6-yard load instantly. Cuts 15 to 25 seconds off cycle-time. And, gravity-dump never balks — never wears out. There's no expensive hoist maintenance, replacement parts, or hoist down-time when you haul with Dumptors®. Better check what this can mean on your work.

KOEHRING DIVISION
Koehring Company
Milwaukee, Wis.

AGREV.



CJ7010

HOPPER CLAMSHELL, CONCRETE BUCKETS

For more facts, use Request Card at page 18 and circle No. 292

ENGINEERS

NOVEMBER, 1957

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Product Parade

Announce all-weather cab for standard tractors

A sturdy all-weather cab for use on International, Ford, Fordson Major, Case, Minneapolis-Moline, John Deere, and Oliver tractors is announced by the J. Frank Sims Cab Co.

The cab is designed to fit either the bare tractor, or tractors equipped with combinations of front and rear-mounted equipment. Operating controls may be mounted inside to allow full use of the tractor in all weather.

According to the manufacturer, the cab is roomy and allows complete visibility in all directions, including upward through the large safety-glass windshield and skylight.

The Sims all-weather cab for use with many tractor makes is designed to fit either the bare machine, or tractors equipped with combinations of front and rear-mounted equipment.



The frame is constructed of 12 and 14-gage steel. Its side panels, which may be either rolled up or snapped off in warm weather, are of fire, wa-

ter, and mildew-resistant canvas, with heavy-duty vinyl plastic windows.

For further information write to

the J. Frank Sims Cab Co., Dept. C&E, Box 98, Holden, Mass., or use the Request Card at page 18. Circle No. 74.

Announce taper bushings for shaft couplings

Its steel double roller chain shaft couplings are now available with interchangeable taper bushings, the Diamond Chain Co., Inc., announces. The taper bushings are supplied



with bores in increments of 1/16 inch so that all standard shaft diameters can be met from stock. According to the manufacturer, the couplings are easily installed on shafts, absorb moderate end play and misalignment, and provide long service. They can be coupled and uncoupled by the removal of a single roller chain connecting pin.

For further information write to the Diamond Chain Co., Inc., Dept. 487, Dept. C&E, 402 Kentucky Ave., Indianapolis 7, Ind., or use the Request Card at page 18. Circle No. 169.

Offer portable concrete re-surfacing machine

A new portable re-surfacing machine for use on concrete surfaces is announced by the Bicknell Mfg. Co.

Featuring one-man operation, the



unit employs two pneumatically powered heads to remove portions of old material for the preparation of a bonding surface. The tool retainer is air-actuated by a 2-way valve.

Accessories include a bush chisel for providing a non-slip surface.

For further information write to the Bicknell Mfg. Co., Dept. C&E, 12 Lime St., Rockland, Maine, or use the Request Card at page 18. Circle No. 164.

Malleable wire rope clips assure safety, strength

Malleable wire rope clips are offered by the Hoboken Bolt & Screw Co.

The clips are designed with the seat of the saddle especially grooved

CONTRACTORS AND ENGINEERS

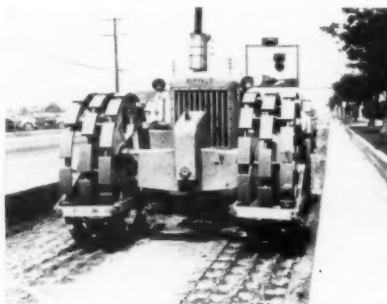
Leading contractors say... K-45 KOMPACTOR most profitable to own

From all over the nation come new contractor reports that Buffalo-Springfield's K-45 Kompactor is regularly saving 50% or more over normal compaction time and costs. These records show that regardless of widely varied materials—K-45 compaction is faster, better and more efficient than was previously thought possible.

Such outstanding results come from the Kompactor's "Interrupted Pressure" principle of compaction... its fast speeds of 5 to 6 mph, self-propelled, in either direction... its high maneuverability... and its ability to work

right up close to curbs, culverts and abutments to eliminate costly hand-tamping. These are a few of the K-45's superior performance features that give more to get more than with any other method.

Before you bid another compaction job, check on the K-45 with your nearest Buffalo-Springfield distributor. Let him show you how the K-45 does more work per day per dollar, brings you more profit. Ask him, too, for Bulletin S-67-455, or write today for complete information on this better, exclusive compaction machine. There's nothing else like it available.



Here, the K-45 Kompactor works up close—eliminates hand tamping on this California job.



The K-45 Kompactor meets density specifications in fewer passes, faster, and at less cost.



Compacting adobe on a fill, this K-45 speeds up work for another leading West Coast contractor.



BUFFALO-SPRINGFIELD ROLLER CO.
DIVISION OF KOEHRING COMPANY • SPRINGFIELD, OHIO

For more facts, use Request Card at page 18 and circle No. 293

to match the contours of each strand of the wire rope. This feature is said to safeguard the strands under extreme pressure, assuring maximum safety and strength. The clips are available in a number of sizes.

For further information write to the Hoboken Bolt & Screw Co., Dept. C&E, Willow Ave. at 17th St., Hoboken, N. J., or use the Request Card at page 18. Circle No. 126.

Two new power take-offs for 4-wheel-drive trucks

Two new transmission side-mounted power take-off assemblies for International light-duty four-wheel-drive trucks are announced by the Motor Truck Division of the International Harvester Co.

The new power take-offs permit operation of equipment located to the rear of the cab and increase the versatility of the four-wheel-drive chassis. Hydraulic pumps, single direction winches, and air compressors are types of equipment that can be driven from this source of power.

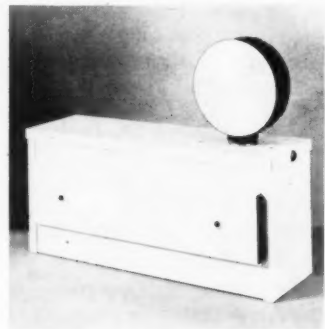
The power take-off assemblies are available for synchromesh or sliding-gear 4-speed transmissions on International Model A-120 (4x4), S-120 (4x4), and R-120 (4x4) trucks. They are one-speed units which mount on the right-hand side of the transmission. Controls are mounted inside the cab on the instrument panel.

For further information write to the International Harvester Co., Motor Truck Division, Dept. C&E, 180 N. Michigan Ave., Chicago, Ill., or use the Request Card at page 18. Circle No. 11.

New warning light has flash-rate control

Its new Owl-Lite Model P-8 two-way flashing warning light is announced by Partronics, Inc.

According to the manufacturer, a powerful battery unit emits a flash visible for over one mile, with the light intensity remaining constant throughout the life of the battery.

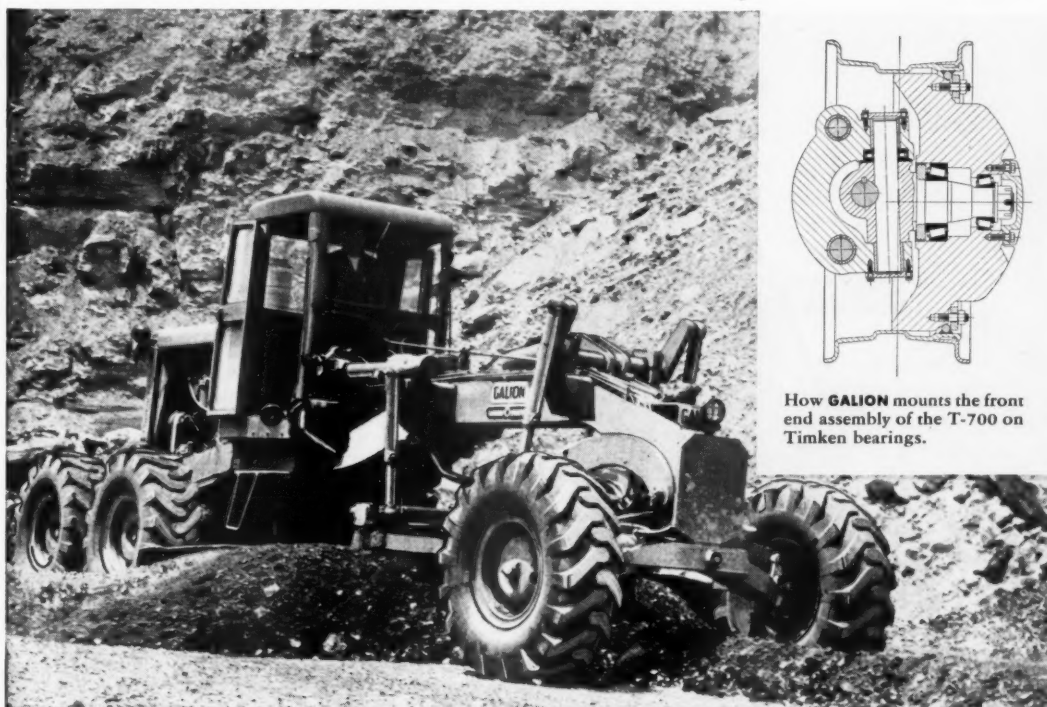
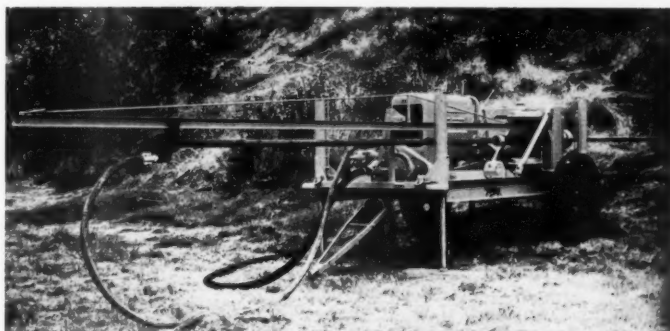


Flash-rate control is incorporated in the circuit.

The Model P-8 is designed for mounting on wood or metal barricades, as well as on a warning stand, also available from the manufacturer. Two weld-nuts are provided on the side plate and bottom for mounting.

For further information write to Partronics, Inc., Dept. C&E, 2421 Elmwood Ave., Buffalo 17, N. Y., or use the Request Card at page 18. Circle No. 167.

Designed to eliminate earth slides caused by excessive water along highways and other right-of-ways, the new George E. Failing Co.'s horizontal "weep hole" drill has a capacity for drilling 4 1/4-inch horizontal holes to a distance of 300 feet. Perforated casing is inserted in the horizontal holes, permitting continuous drainage of the affected areas. For further information about this new rotary drilling rig write to the George E. Failing Co., Dept. C&E, P. O. Box 872, Enid, Okla., or use the Request Card at page 18. Circle No. 60.



How GALION mounts the front end assembly of the T-700 on Timken bearings.

World's largest motor grader weighs more than 20 tons—24 TIMKEN® bearings take the load

THE world's largest motor grader (above) sets up enormous loads as it slams a road into shape. And when it rolls on a steep grade, the thrust loads are even greater. To make sure their T-700 Grade-O-Matic could take all the loads, the Galion Iron Works & Manufacturing Company specified 24 Timken® tapered roller bearings—for the reverse gear case, transfer case, front wheels and king pins, and the rear wheel tandem drive.

The tapered construction of tapered roller bearings lets them take all combinations of loads—thrust as well as radial. And because they're case-carburized to produce hard, wear-resistant surfaces over tough, shock-resistant cores,

Timken bearings take the shock loads of heavy construction work. And full line contact between rollers and races gives them extra load carrying capacity to stand up to the job day after day, season after season.

Timken bearings are geometrically designed to provide true rolling motion—precision manufactured to live up to their design. They practically eliminate friction. And by holding shafts concentric with their housings, they make closures more effective—keep lubricant in, dirt out.

And to make sure we control the quality of Timken bearings all the way down the line, we even make our own steel—an extra step no other American bearing manufacturer takes.

Make sure you get all these advantages in the machines you buy or build. Specify Timken bearings. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ont. Cable: "TIMROSCO".



This symbol on a product means its bearings are the best.



TIMKEN

TAPERED ROLLER BEARINGS ROLL THE LOAD

See the next Timken Teleview hour, "The Innocent Years", over NBC-TV, Thursday night, November 21st.

For more facts, use Request Card at page 18 and circle No. 294

Product Parade

Bump-cutting machine smooths road surfaces

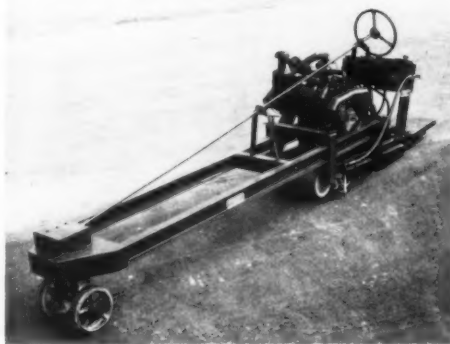
Its new machine for eliminating bumps in concrete or asphalt surfaces is announced by Concut Sales, Inc.

Designated the Concut bump cutter, the unit is propelled by a Lycoming 70-hp air-cooled engine. This engine also drives the cutting head which is composed of a series of diamond blades with an over-all width of 17½ inches. By changing the thickness of the spacers between the blades, the surface texture of the finished slab may be varied to meet non-skid requirements. According to the manufacturer, two or three passes are

Designed to eliminate bumps in concrete or asphalt surfaces, the Concut bump cutter has a cutting head composed of a series of diamond blades with an over-all width of 17½ inches. The surface texture of the finished slab may be varied to meet non-skid requirements.

generally required to successfully plane most surfaces.

The 2,000-pound unit has an over-all length of 14 feet 8 inches, an over-



all width of 34 inches, and is 58 inches high.

Other suggested applications for the machine include removing old paint

markings from streets, highways, and airfields; removing accumulations of old rubber from airfield runways; and planing bridge deckings.

For further information write to Concut Sales, Inc., Dept. C&E, 1845 Belcroft Ave., El Monte, Calif., or use the Request Card at page 18. Circle No. 123.

Lightweight journal jack has 100-ton capacity

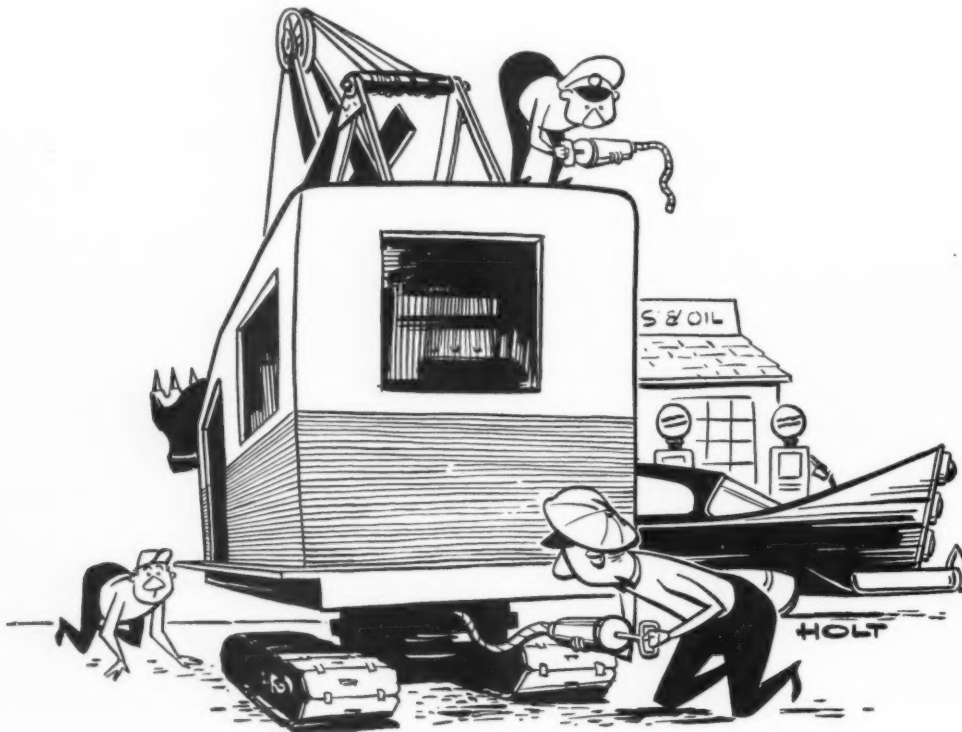
A 98-pound, easy-to-carry aluminum journal jack with a 200,000-pound capacity is announced by the Duff-Norton Co.



The new unit is only 12 inches in closed height, and has a base diameter of 8¾ inches. Two bail-type handles make the jack easy to carry.

The aluminum journal jack has a 4-inch raise and requires an effort of only 120 pounds to lift 100 tons, according to the manufacturer. A lug on the ratchet makes it possible to spin the head, which is five inches in diameter, to load level rapidly.

The jack has a heat-treated lifting screw, worm, and bronze worm gear,



Why use automobile grease in heavy-duty equipment?

Let's not kid ourselves about the difference between the lubrication requirements of automobiles and heavy-duty machinery. D-A Lubricants are compounded specifically for heavy-duty equipment. There is a right one for every application.

For example, D-A Track Roller Lubricant • D-A Winter Track Roller Lubricant • D-A Open Gear • D-A Torque Fluid • D-A Lithium, Extra-Heavy • D-A Transmission Lubricants • D-A Gun Greases.

Let your D-A Representative give you all the facts on how D-A Lubricants can reduce parts wear and minimize downtime . . . increase the return on your equipment investment.

D-A Lubricants make equipment last longer



D-A LUBRICANT COMPANY, INC. • Indianapolis 23, Indiana

For more facts, use Request Card at page 18 and circle No. 295

Katolight
PORTABLE POWER PLANTS

Now!

CREWS HAVE READY POWER FOR ANY JOB... ANYWHERE!

You save time . . . You speed work . . . because with Katolight Portable Power Plants, crews have "plug-in" electricity instantly available to operate all types of tools, equipment, lights, right on the job, regardless of location or conditions.

Sizes and models for every portable, standby or continuous use. Dolly or skid mounted models from 350 watts to 75 K.W. A.C. Up to 500 KVA on request.

DEPENDABLE ELECTRICAL EQUIPMENT SINCE 1928!

KATOLIGHT CORPORATION
BOX 891-8 MANKATO, MINNESOTA

For more facts, circle No. 296
CONTRACTORS AND ENGINEERS

and a large-capacity Timken roller load bearing. Its shell casting and base are made of a high-grade aluminum alloy.

For further information write to the Duff-Norton Co., Dept. C&E, P. O. Box 1889, Pittsburgh, Pa., or use the Request Card at page 18. Circle No. 172.

New high lift block for 5 to 50-ton loads

Its new Miller high lift block with Timken bearing hook is announced by the General Machine & Welding Works, Inc.

Designed especially for traveling and bridge cranes, the unit is con-



structed of heavy steel welded plate for rigidity and extra strength, with bronze or roller bushings.

Additional features include cast steel sheaves with machined wire rope grooves, individual sheave lubrication, and an enclosed sheave guard. The block comes in a variety of sizes, in 5 to 50-ton capacities.

For further information write to General Machine & Welding Works, Inc., Dept. C&E, P. O. Box 938, Pomona, Calif., or use the Request Card at page 18. Circle No. 158.

No-shift reversing with new transmission

A new torque converter transmission featuring no-shift reversing is announced by the Funk Aircraft Co.

Designated Revers-O-Matic Drive, the new transmission completely eliminates clutch and gear shifting, the manufacturer reports; a single throttle lever instantly changes both direction and speed of travel. Two foot pedals may be substituted for the lever when it is advantageous to leave the operator's hand free.

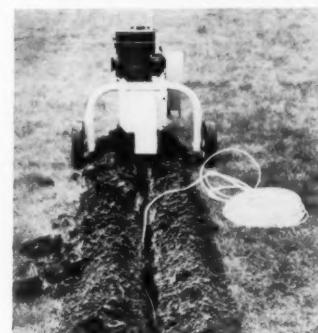
Due to the absence of direct mechanical connection between power and load, the unit is said to provide smoother, faster acceleration, and maximum pulling power, with no danger of stalling the engine.

The Revers-O-Matic is adaptable to any type of operation involving change in direction of movement, either forward and reverse, or lift and lower, on equipment with engines up to 250 cubic inches in displacement.

For further information write to the Funk Aircraft Co., Dept. C&E, Box 577-AX, Coffeyville, Kans., or use the Request Card at page 18. Circle No. 129.

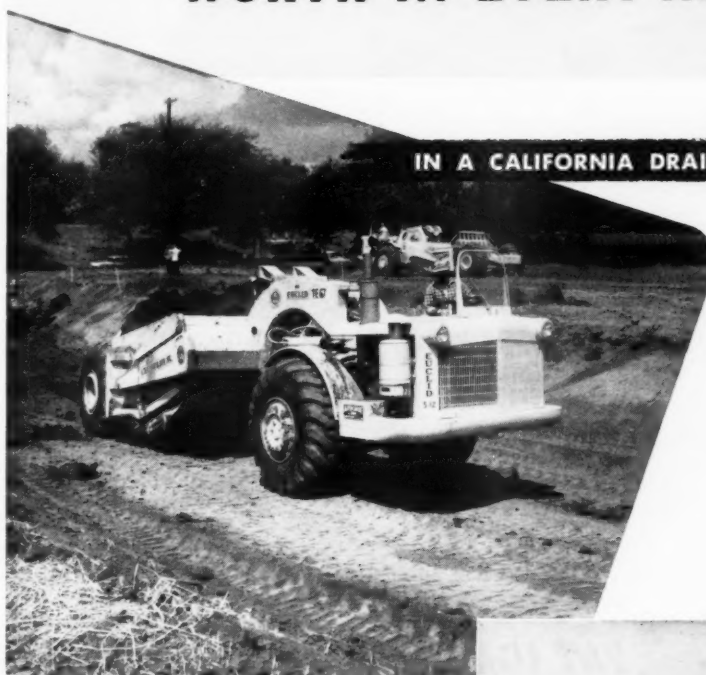
For more facts, circle No. 297-

This automatic trenching machine, shown being used for the installation of electrical cable insulated with Bakelite vinyl resins, literally saws through hard ground, with a minimum of torn-up earth. The hardened steel teeth of the saw reportedly cut a sharp, clean trench 2 1/4 inches wide even in rugged soil. Three models are available that trench to depths of 12, 18, or 24 inches. For further information about this automatic trenching machine, write to the Cosom Engineering Co., Dept. C&E, Minneapolis, Minn., or use the Request Card at page 18. Circle No. 73.



"EUC" S-12 SCRAPERS PROVE THEIR WORTH IN EVERY KIND OF DIRT

IN A CALIFORNIA DRAINAGE DITCH



... for a disposal plant north of Freeport, A. Teichert & Son moved 400 yds. per hour with two Euclid S-12 Scrapers. Loading conditions were good and hauls averaged 700' to 1000'. About 80,000 yds. of earthmoving were involved in making the ditch 10' wide at the bottom and 35' wide at the top with 1:1 slope. Equipped with 10" sideboards, the 218 h.p. "Eucs" averaged 15 yd. payloads. Easy loading and fast travel speed of these dependable Euclid Scrapers made quick work of the job.

ON A FLORIDA HOUSING SITE

... near Sarasota, S-12 Scrapers proved that they move more yards at lower cost—regardless of soil conditions or application. Working in hard loading beach sand the three S-12's of Howard Thomas Const. Co. obtained heaped loads of 14 to 16 yards. And, availability was 98% in contrast to the excessive downtime and maintenance costs of four cable-operated scrapers which these hydraulic S-12 Euclids had replaced several months earlier. The high production and availability of the "Eucs" helped this contractor complete the job ahead of schedule.



● Whatever your work—whatever kind of dirt—get a production-cost estimate on the S-12. Just check with your Euclid dealer... he can show you why Euclids are your best investment.

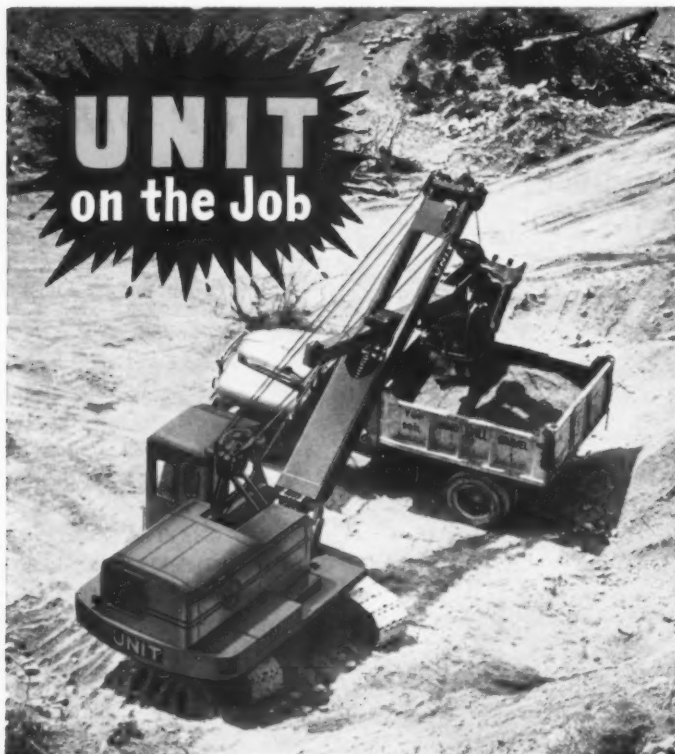
EUCLID DIVISION GENERAL MOTORS CORPORATION, Cleveland 17, Ohio

Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE



An improved machine for automatically welding aluminum pipe is shown receiving its final field tests near Corpus Christi, Texas. The machine welded four miles of 4-inch Schedule 4 aluminum pipe in a Reynolds gas-gathering system, with completely satisfactory results reported. During this operational test, the machine welded 2,880 feet of the pipe in a four-hour period, with no supplemental hand-welding needed at any point. For further information about this new welding development, write to the Reynolds Metals Co., Dept. C&E, 2009 S. Ninth St., Louisville 1, Ky., or use the Request Card at page 18. Circle No. 146.



SWING SPEED makes PAY LOADS!

Here's a UNIT 1/2 Yard Shovel doing a PRODUCTION DIGGING JOB in a gravel pit. UNIT owners like the ease of operation and the FULL VISION CAB for complete visibility. They also like the sturdy construction and the many mechanical features, plus the ECONOMICAL PERFORMANCE and LOW UP-KEEP which all add up to EARNING POWER. Why not investigate what UNIT can do for you — on YOUR next excavating and material handling job?

SEE FOR YOURSELF: Let us send you our novel TV Brochure. It illustrates the complete UNIT line.

UNIT CRANE & SHOVEL CORPORATION
6309 WEST BURNHAM STREET • MILWAUKEE 14, WISCONSIN, U. S. A.



1/2 or 3/4 YARD EXCAVATORS... CRANES UP TO 20 TONS CAPACITY
CRAWLER OR MOBILE MODELS . . . GASOLINE OR DIESEL



All Models Convertible to ALL Attachments!

For more facts, use Request Card at page 18 and circle No. 298

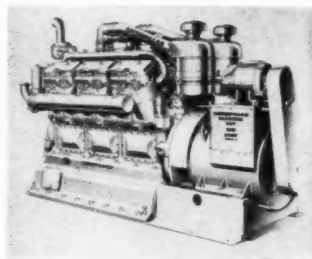
Spark-ignition electric set is compact, powerful

A new electric set said to combine high output and compactness is announced by the Caterpillar Tractor Co.

Designated Cat D397, the set's self-regulated constant-voltage generator produces 250 kilowatts of 60-cycle, three-phase current at a choice of 240, 480, or 2,400 volts. It is also available to generate 50-cycle current.

The D397 spark-ignition engine powering this unit will operate on methane, butane, propane, or field gases.

For further information write to



the Caterpillar Tractor Co., Dept. C&E, Peoria, Ill., or use the Request Card that is bound in at page 18. Circle No. 37.

Small asphalt compactor handy in tight work

A portable asphalt roller and tamper for use in places inaccessible to conventional rollers is available from the Lucas Asphalt Compactor Co.

Self-propelled by a 3-hp gasoline

engine, the unit requires a single operator. Its approximate weight is 400 pounds.

Rollers and tampers on the machine are 18 inches wide. Controlled by one lever, the tampers are op-

40% FASTER THAN ANY OTHER DRILL

• The McCarthy Vertical Auger Drill cuts drilling time in earth, clay, compacted sand and gravel, hard pan, shale, sandstone and rock as much as 40%. Rugged construction permits you to drive 2 to 24-inch augers to depths of as much as 125' faster than any other drill. Get the facts on the powerful McCarthy today. See how you can complete shot hole, exploration drilling, foundation holes, dewatering operations, well drilling, highway construction and heavy contract work faster than ever before. The versatile, vertical McCarthy gives you more than any other drill. Write for Bulletin M-100 now. Let us show you how you can turn new profits on your drilling job.



McCarthy Vertical Auger Drill Model 106-24



MANUFACTURED BY

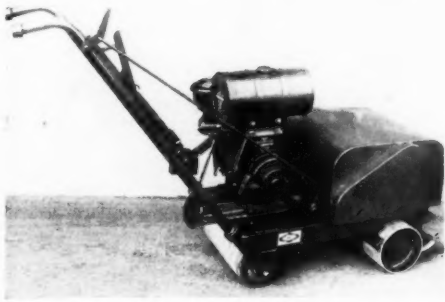
THE SALEM TOOL CO.

806 S. Ellsworth Ave., Salem, Ohio

For more facts, use Request Card at page 18 and circle No. 299

CONTRACTORS AND ENGINEERS

Product Parade



erated while rolling; the roller can also be operated without using the tampers. According to the manufacturer, the compactor can produce as much compression as a 6 to 8-ton roller when the tampers are used.

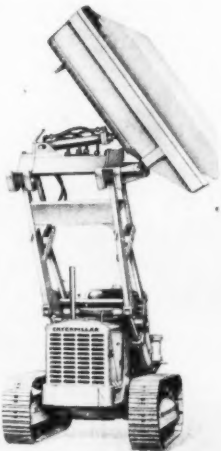
The machine is said to be ideal for many types of patching and repair work.

For further information write to the Lucas Asphalt Compactor Co., Dept. C&E, 2209 E. Market St., Stockton, Calif., or use the Request Card at page 18. Circle No. 132.

Side-dumping bucket permits in-line loading

A new side-dumping bucket attachment for the Caterpillar No. 933 (Series E) Traxcavator is announced by the Caterpillar Tractor Co.

Designed to perform in-line loading, eliminating the need for constant turning in order to dig and load, the bucket operates by the use



of a hydraulic cylinder mounted on the bucket carriage. The bucket is hinged to the carriage and is firmly locked in place when in the conventional digging position.

When side-dumping is desired, the operator actuates the hydraulic cylinder by the use of a control lever situated to his right, on the hydraulic tank. When actuated, the dumping cylinder unlocks the bucket from the bucket carriage and swings it into a 64-degree side-dumping angle to the left only.

For further information write to the Caterpillar Tractor Co., Dept. C&E, Peoria, Ill., or use the Request Card at page 18. Circle No. 142.

To obtain further information on any of the products described in this section, circle the number given at the end of the item on the Request Card at page 18.

SWENSON SPREADERS FOR ICE CONTROL

SPREADS SALT 200 LBS. PER MILE OR IN ANY DESIRED AMOUNT

Lays a Narrow Strip or Full Traffic Lane

Handles all granular materials — salt, cinders, sand, calcium chloride, rock chips. Spreads at speeds up to 30 M.P.H. Clutch-controlled flow: steady or intermittent for hills and intersections.

Write for complete information

SWENSON SPREADER & MFG. CO.
LINDENWOOD, ILLINOIS



For more facts, use Request Card at page 18 and circle No. 300

"Unexpected equipment problems?

We solve them by
RCA 2-Way Radio!"

Says Clifford Worsham, Worsham Bros., Miss.



Clifford Worsham, one of the three Worsham brothers who started the big highway construction business in Corinth, Miss., in 1945, finds their RCA 2-Way Radio system a great help in handling unexpected equipment problems. Here he checks a blueprint while talking over heavy equipment requirements with a project superintendent who is two hours away by highway travel. Another brother, Frank Worsham, writes: "The system is definitely saving us money. It's wonderful for eliminating delays in getting heavy road building equipment from one job to another, expediting trouble-shooting, speeding help in emergencies. We chose RCA 2-Way Radio because we know the RCA reputation for quality."

Worsham Bros.' highway construction operations are far-flung with as many as a half-dozen projects going at the same time. The RCA Carfone "Fifty" System includes 12 mobile units installed on one low-boy trailer, two cars, eight pick-up trucks and one heavy truck. Thanks to RCA 2-Way Radio, all of the activities now are at the fingertips and ears of managing personnel in the Corinth, Miss. Office and Maintenance Shop.



Shop mechanic with pick-up truck stays close to office and project, ready to handle any emergency by means of 2-Way Radio.



Job superintendent confers on progress, checking with another brother, Leroy Worsham, many miles away.

Mail coupon for information



RADIO CORPORATION of AMERICA

COMMUNICATIONS EQUIPMENT

CAMDEN, N.J.

RADIO CORPORATION OF AMERICA
COMMUNICATIONS PRODUCTS
DEPT. Z-277, BUILDING 15-1, CAMDEN, N.J.
In Canada: RCA VICTOR Company Limited

☐ Please send me FREE literature on the use of RCA 2-Way Radio in the construction business.

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

☐ Have RCA Communications Specialist make a FREE RADIO SURVEY of our business.

For more facts, use coupon, or Request Card at page 18 and circle No. 301

Product Parade

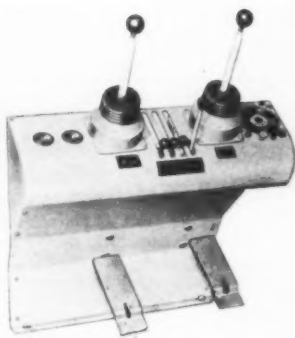
Two-lever power controls announced for big rig

Two-lever, Joy-Stick power controls for the Lorain 26—a crawler-mounted machine with a heavy-duty $\frac{3}{4}$ -yard rating as a shovel and 17½ tons as a crane—are announced by the Thew Shovel Co.

This feature controls swing, travel, hoist, crowd, and retract, as well as load lowering and boom derricking, all by hydraulic power. Besides reducing operator fatigue, the power unit is said to improve control, response, and speed of the operation.

All series of Lorains are now available with Joy-Stick power controls.

For further data write to The Thew Shovel Co., Dept. C&E, 28th and Ful-



ton Road, Lorain, Ohio, or use the card at page 18. Circle No. 69.

Tilting concrete mixer designed for small jobs

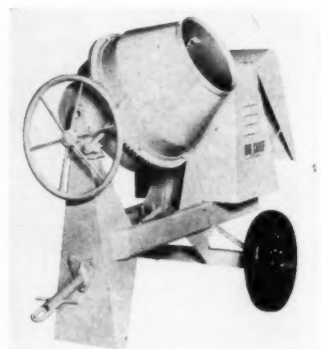
Its Model 3S tilting concrete mixer is available from the Big Chief Division of the Douglas Motors Corp.

The unit has a 3 to 3½-cubic-foot capacity and is designed for side discharge. One man can handle the charging-mixing-discharging operation.

The Model 3S has a charging height of 54 inches, with its over-all length (with tow pole retracted) 71 inches, height (drum vertical) 65 inches, and over-all width (including tires) 48 inches. Tires are 4.00×12 pneumatics, mounted on Timken bearings.

Power for the mixer is supplied by either a 2.2 or 3-hp Briggs & Stratton engine. An electrical motor is optional.

For further information write to



the Big Chief Division, Douglas Motors Corp., Dept. C&E, 2025 W. Clybourn St., Milwaukee, Wis., or use the Request Card at page 18. Circle No. 86.



This exclusive feature makes the Rogers HYDRAU-LIFT more than a detachable gooseneck trailer — one, in fact, that performs operations no other trailer can handle.

IT detaches, loads and reloads in as little as 3 minutes.

IT loads from the front, making turning on deck unnecessary.

IT can travel with deck lowered or raised to pass under or over obstructions thus avoiding detouring, moving ahead and reloading.

IT can discharge overhanging loads quickly and simply.

IT raises tractor or trailer wheels, while attached, to easily service tires or attach chains.

ITS flat, unobstructed gooseneck provides a convenient place on which to carry dippers, bulldozer blades, etc.

IT requires no winch, saving up to \$900 in cost and 1000 pounds in overall weight.



PACKY SAYS:

"It's 'almost like lifting oneself by his boot straps' as the literature explains."



Send for a copy ———→

ROGERS BROTHERS CORPORATION
ORCHARD STREET • ALBION, PENNA.
Export Office, 50 Church St. • New York 7, N. Y., U. S. A.
Cable Address: BROSITES

For more facts, use Request Card at page 18 and circle No. 304

T-square for desk use eliminates drawing board

A T-square, especially designed for those working at desks and faced with the problem of making small drawings, sketches, plans, and the like, is announced by the Dolgorukov Mfg. Co.

Said to be usable directly against the edge of a letter-size pad of paper, the new instrument not only elimi-

nates the necessity of a small drawing board, but also permits the removal of a finished drawing without disturbing the others.

For further information write to the Dolgorukov Mfg. Co., Dept. C&E, 407 Fisher Bldg., Detroit 2, Mich., or use the Request Card at page 18. Circle No. 125.

Cut Rod, Wire

FAST • EASY TO USE • PORTABLE

MANCO HYDRAULIC GUILLOTINE

Ideal for use in
Pre-Stressed
Concrete Work

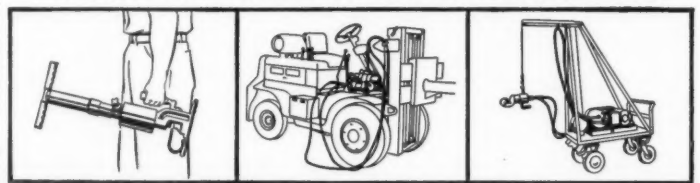
You can't match a Manco Hydraulic Guillotine for ease and speed of cutting heavy wire and reinforcing rod. From 10 to 65 tons cutting thrust is developed in these relatively portable tools . . . bites right through rod and wire in as little as ¼ second per cut. Three models available with maximum capacities of ½", 1" and 1½".

Trademark Registered in Canada

Manco model MC 210 Hydraulic Guillotine illustrated above has a ½" maximum capacity. Requires only ¼ second per cut. Complete Manco power operated hydraulic unit includes cutting head, motor, pump and pump reservoir.



AVAILABLE IN A VARIETY OF READILY PORTABLE TOOLS



Model MC-35 with integral hand pump. Manually operated completely portable. 1" capacity.

Lift truck mounted Guillotine Cutter and hydraulic booster pump utilizes truck hydraulic system. Cutter will cut 1" rod in 1 second.

Manco Guillotines can be dolly mounted for portability. Motor can be electric or gasoline. Cutting head is mounted on spring tension balancer.

Write For Catalog . . . Dept. CE-11

MANCO MFG. CO. Bradley, Illinois

For more facts, use Request Card at page 18 and circle No. 305

CONTRACTORS AND ENGINEERS

New hydraulic backhoe features fast hook-up

A new hydraulic backhoe featuring quick attachment and detachment is announced by the Snap-On-Digger Co.

Designated Snap-On-Digger, and engineered to fit standard-make tractors, the all-hydraulic unit is said to attach or detach in 30 seconds.

One conveniently located release lever and a single break-away coupled hose require the only manipulation needed to detach the unit, leaving it standing on a tripod of the backhoe and the two hydraulic stabilizers. Attachment reportedly is just as simple.

The Snap-On-Digger affords more than 12 feet of digging depth, a loading clearance of almost 9 feet, and a continuous swing of 190 degrees.

For further information write to the Snap-On-Digger Co., Dept. C&E, 1115 W. Fourth St., Winona, Minn., or use the Request Card at page 18. Circle No. 140.

One release lever and a single break-away coupled hose require the only manipulation needed to detach the Snap-On-Digger hydraulic backhoe.



New welder features 5-step current control

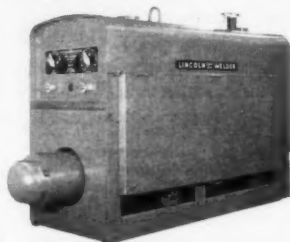
Its Model K-6090 portable arc welder is announced by the Lincoln Electric Co.

The new welder is rated at 200 amperes at 40 volts and 60 per cent duty cycle; has dual controls for the generator output, an electrical outlet providing one kilowatt of auxiliary dc power, an idling device; and is powered by a Continental 36-hp water-cooled gasoline engine.

Controls on the new Model K-6090 include a five-step selective current control, and a continuous voltage control which also provides fine adjustments in the current. The ranges of the steps on the selective current control overlap so that it is possible to obtain either a high or a low open circuit voltage for any current, and thereby select the type of arc most appropriate for the work. The auxiliary power is 115-volt dc.

A 16-gallon gasoline tank will operate the unit for 14 hours at a 60 per cent duty cycle, the manufacturer reports.

For further information write to the Lincoln Electric Co., Dept. C&E, P. O. Box 3115, Cleveland 17, Ohio, or use the Request Card at page 18. Circle No. 139.



To obtain further information on any of the products described in this section, circle the number given at the end of the item on the handy Request Card that is bound in at page 18 of this issue.



One of the B-80 dumpers operated by Morse Sand & Gravel Company, Inc., of Attleboro, Mass.

two gravel-hauling dumpers supply 20 ready-mix trucks

"Our two Mack dumpers operate nine hours a day supplying gravel for our fleet of 20 ready-mix trucks. Averaging six round trips an hour over our own roads, these Macks have hauled over 350,000 tons in the last six months. Continuous operation of these two dumpers is vital to us. That's why we chose Macks... and they've more than lived up to their reputation. So far, we've had only routine maintenance and service to contend with."

This is the experience of Mr. Alfred H. Morse, president of Morse Sand & Gravel.

Macks are universally acknowledged for their outstanding performance, operating economy and stamina. On-the-job operating reports, like Mr. Morse's, show why.

Want more proof? Let your Mack representative show you the

performance records of other Mack users in your area—operators who found out how much they can profit by using the best. Mack Trucks, Inc., Plainfield, New Jersey. In Canada: Mack Trucks of Canada, Ltd.

MACK
first name for
TRUCKS

For more facts, use Request Card at page 18 and circle No. 306

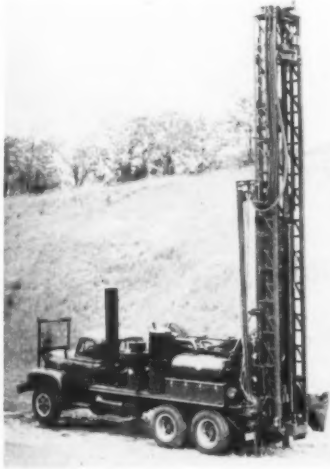
Product Parade

New truck-mounted rotary drill is diesel-powered

Its new, diesel-powered, truck-mounted Rotadrill is announced by Schramm, Inc.

On this unit, an International Harvester UD 1091 diesel engine is direct-coupled to a Schramm air compressor with no connection to the truck engine. Hydraulic pumps, the oil cooling system, and the dust-collecting fan are all driven by the diesel engine. Normally, the compressor delivers 450 cfm at 20 psi. However, for dewatering or breaking out blockages, air pressure can be boosted to reach 200 psi.

For long-distance highway trans-



portation, the mast is lowered, but the rig can be moved around quarries or other installations with the mast up. Raised and lowered by hydraulic cylinders, the mast is made of heavy structural steel. It is 30 feet high, with 25-foot travel for a 20-foot 6-inch drill pipe.

Holes can be drilled to 700 feet with 4½-inch-OD drill pipe, and to 1,500 feet with 2⅝-inch-OD drill pipe. Maximum down pressure is 25,000 pounds, and maximum lifting pressure is 19,000 pounds.

For further information write to Schramm, Inc., Dept. C&E, 900 E. Virginia Ave., West Chester, Pa., or use the Request Card at page 18. Circle No. 127.



Portable space heater burns for 16 hours

A new portable space heater is announced by the Champion Mfg. Co. Designated Champ-Heater 16, the new unit is available in 120,000, 200,000, and 300,000 Btu sizes, and features a 16-hour burning capacity.

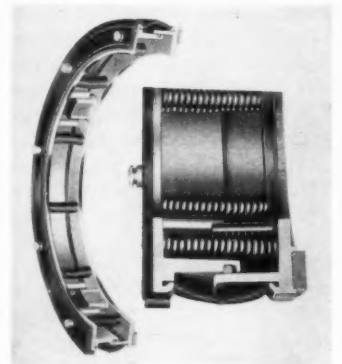
According to the manufacturer, its Sunstrand motor and burner furnish complete combustion for odorless, fumeless operation.

For further information write to the Champion Mfg. Co., Dept. C&E, 2028 Washington Ave., St. Louis 3, Mo., or use the Request Card that is bound in at page 18 of this issue. Circle No. 112.

Improved lubricant seal for tractor final drive

An improved lubricant seal for the final drive on Caterpillar D-9 tractors is announced by the Sure-Seal Equipment Co.

Designated Sure-Seal, the new unit is said to offer double protection against lubricant loss from the final

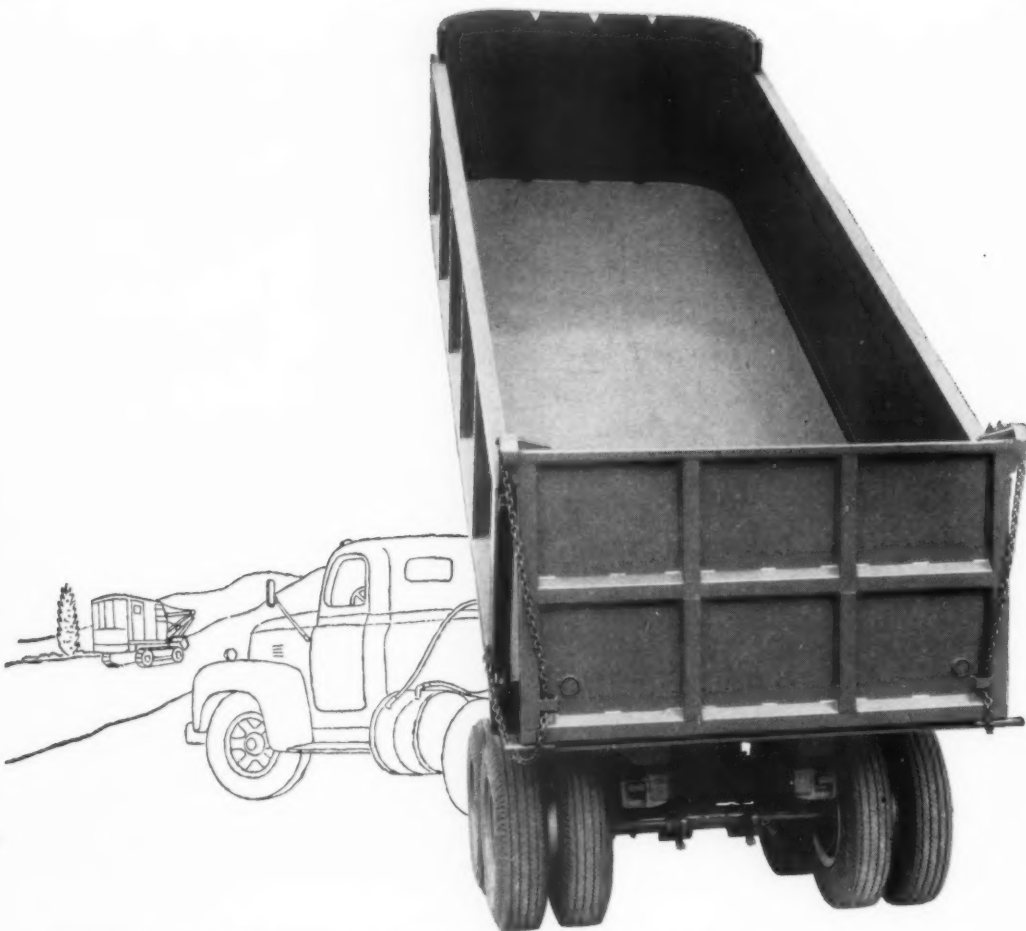


drive. Besides the conventional outer rubber bellows seal, there is an inner seal consisting of a rubber O-ring which rides between metal flanges. This inner seal retains lubricant even though the outer bellows seal is ruptured.

Sure-Seal also prevents dirt and water from entering the final drive, the manufacturer reports.

The seals are also made for other tractor models.

For further information write to the Sure-Seal Equipment Co., Dept. C&E, 1820 N. W. 25th Ave., Portland 10, Oreg., or use the Request Card that is bound in at page 18 of this issue. Circle No. 160.



Which hoist is lifting this dump trailer?



Front-Mount Telescopic Twin Underbody Telescopic Single Underbody Piston Twin Underbody Piston Frameless Telescopic

No single type of hoist can effectively meet the diverse requirements of construction work today. That's why Trailmobile provides the full range of hoist arrangements shown above and many other design variations—so that your particular dump trailer needs can be fulfilled without undesirable compromises.

Your Trailmobile representative will show you how you can "custom design" your next dump trailer for maximum efficiency under your conditions. Call him—you'll find he is an extremely helpful "consultant".

TRAILMOBILE INC.

Cincinnati 9, Ohio • Berkeley 10, Calif. • Springfield, Missouri • Longview, Texas
Sales and Service from Coast to Coast

For complete information check your nearest Trailmobile sales office or use this coupon.

TR-619

TRAILMOBILE INC. • 31st & Robertson • Cincinnati 9, Ohio
Please send me complete information on Trailmobile dump trailers.

Name _____

Company _____

Street _____

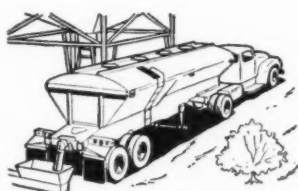
City _____ State _____

For more facts, use coupon, or Request Card at page 18 and circle No. 307

A new, larger, and more powerful V8 engine, several chassis improvements, and new front-end styling are features of this 1958 Chevrolet Spartan heavy-duty tandem. The new 348-cubic-inch, 230-hp engine is designed for truck service with sodium-cooled exhaust valves, heavy-duty bearings, valve rotators, and Silichrome exhaust valve seat inserts. A special feature is the machined combustion chamber located in the top of the cylinder bore for greatly improved combustion efficiency. The engine is standard in the 90 and 100 series. For further information about the 1958 Chevrolet Spartan, write to the **General Motors Corp., Chevrolet Motor Division**, Dept. C&E, General Motors Bldg., Detroit 2, Mich., or use the Request Card at page 18. Circle No. 131.

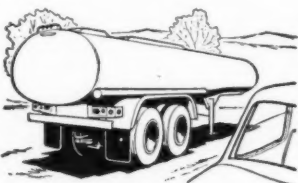


There's a Trailmobile trailer for every construction need



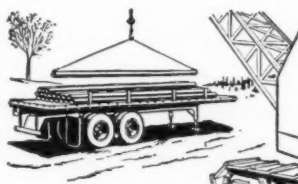
TRAILMOBILE CEMENT BULKERS

... transport large amounts of bulk cement to mixing plants at the job site. Both steel and aluminum types offer exclusive step-down design with twin screw discharge.



TRAILMOBILE TANK TRAILERS

... are widely used for hauling hot asphalt, road oils, and the great volume of water required at the site. Most units carry a unique guarantee against tank leakage.



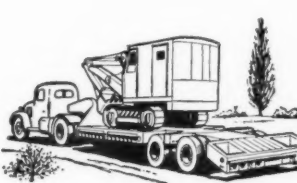
TRAILMOBILE PLATFORM TRAILERS

... are used for carrying lumber, cement forms, drainage tile, straw bales and sundry light equipment. "Sideless feature" permits simpler, faster loading and unloading.



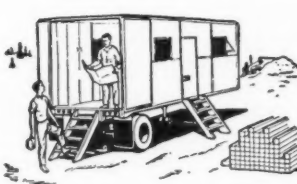
TRAILMOBILE HYDRAULIC DUMPS

... provide big capacity in a dump-type trailer for hauling and unloading sand and gravel. Unusually rugged construction guards against costly out-of-service time.



TRAILMOBILE LOW BEDS

... are used to deliver heavy road building equipment to the job area. Steel shovels, bull dozers and other large tractor-treaded units can be easily transported on these powerfully built trailers.



TRAILMOBILE FREIGHT VANS

... combine weather protection and mobility for hauling general supplies. Low cost used vans provide ideal job site offices, tool shops or storage facilities.

TRAILMOBILE INC.

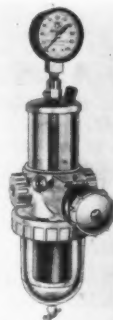
Cincinnati 9, Ohio, Berkeley 10, Calif., Springfield, Mo., Longview, Texas
Sales and Service from Coast to Coast

For more facts, use Request Card at page 18 and circle No. 308

New three-in-one device for compressed-air work

A combination regulator-filter-lubricator for compressed-air operations is announced by the Perfecting Service Co.

According to the manufacturer, the



unit performs its three functions simultaneously, is ready to install, and requires only two connections.

It is available in 1/4, 3/8, 1/2, and 3/4-inch pipe sizes.

For further information write to the Perfecting Service Co., Dept. C&E, 332 Atando Ave., Charlotte 6, N. C., or use the Request Card at page 18. Circle No. 161.

Expansion-joint material made of extruded plastic

An extruded plastic 3-in-1 joint is offered by Progress Unlimited, Inc.

Designated Plasti-Grip, the material comes in continuous strips 100 feet long, and 5, 6, or 9 inches wide. Recommended for use as an expansion joint, construction joint, or waterstop, Plasti-Grip reportedly can be cut with a knife and spliced on the job with a hot iron in minutes.

According to the manufacturer, the material's deep grooves effect a solid grip on the concrete, and its reinforced U-shaped center pleat expands and contracts with the joint.

Plasti-Grip reportedly will resist water pressures up to 125 feet head; stay flexible even in extremely low temperatures; and is alkali and acid-resistant.

For further information write to Progress Unlimited, Inc., Dept. C&E, 15 W. 44th St., New York 36, N. Y., or use the Request Card at page 18. Circle No. 128.

It takes 16 STEEL STAR DRILLS to do the work of ONE —

Thunder-twist® CARBIDE-TIPPED MASONRY DRILL

when drilling in ANY MASONRY from BRICK to GRANITE

for use in ELECTRIC or PNEUMATIC HAMMERS and it's a ONE-MAN OPERATION

These rugged hammer bits will never pack, stall or bind because the EXCLUSIVE combination of vertical and spiral flutes assure positive dust removal from the cutting zone. You can drill 100 holes without resharping and there is no loss of diameter on regrinds. On your next drilling job use Thunder-twist for lowest cost per hole. Sizes from 3/16" to 1 1/2" in diameter. Extended lengths up to 18"

New England CARBIDE-TIPPED MASONRY DRILLS

DESIGNED, ENGINEERED and PROVEN for the Job! Copied but NEVER equalled!

For Rotary Drilling of HARD MASONRY use CYCLO-CORE Multi-Tipped Carbide Drills Sizes 1/4" to 6" diameter

For Rotary Drilling of ORDINARY MASONRY use CYCLO-TWIST The most efficient single point bit available. Sizes 7/64" to 1 1/2" diameter.

Available at your local Industrial Supplier or write direct for information

New England CARBIDE TOOL CO., INC.

55F Commercial St. Medford 55, Mass.

Please send me the FREE copy of your "WHAT and HOW" Masonry Drilling Manual

NAME _____ ADDRESS _____ CITY _____ STATE _____

For more facts, use coupon or circle No. 309

Product Parade

New warning flasher fueled with kerosene

Its new Rhewum-Blitz flashing kerosene lamp is announced by the Hertvy Co., Inc.

The lamp emits 50 to 70 flashes per minute, and is said to burn for 50 consecutive hours on one 8-ounce filling of kerosene. Standing 16 inches high and weighing slightly under 3 pounds, it is protected against damage by a sturdy red metal cover.

The light in the lamp shines through a white glass window on one side of the cover, while a red magnifying glass window on the opposite side intensifies the flashing signal.

For further information write to



the Hertvy Co., Inc., Dept. C&E, Rego Park 74, N. Y., or use the Request Card at page 18. Circle No. 166.

The Champion Model CS-500 concrete saw is self-propelled by use of a re-rated Wisconsin TF engine said to provide over 18 horsepower.



Announce self-propulsion for small concrete saw

The availability of self-propulsion for the smallest concrete saw in its line is announced by the Champion Mfg. Co.

Designated Model CS-500, the unit makes use of a re-rated Wisconsin TF engine said to provide over 18 horsepower.

The machine is designed for sawing contraction joints, trenching, patching, and other jobs usually handled by heavier saws, according to the manufacturer.

For further information write to the Champion Mfg. Co., Dept. C&E, 2028 Washington Ave., St. Louis 3, Mo., or use the Request Card at page 18. Circle No. 92.

Offer liquid dissolvent for hardened concrete

A new liquid dissolvent for hardened concrete is announced by the Industrial Synthetics Corp.

Designated Disolvex, the new compound works by catalytic action and is said to dissolve concrete immediately on contact. According to the manufacturer, it has no effect on the

For more facts on these products, circle the indicated number on the Request Card at page 18.

aggregates in the mix in any way; they are merely released and fall to the bottom of the receptacle.

Disolvex will work on any known mix of concrete, no matter how old it is, with the exception of concrete mixed with rubber, the manufacturer states.

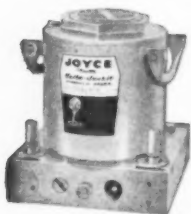
Cleaning time varies with the strength of the solution and the age and thickness of the concrete. Usual cleaning time is said to be from four hours for concrete up to 1/4-inch thick and up to six months of age, to overnight for older concrete.

Disolvex reportedly has no adverse effect on metals of any kind excepting aluminum, zinc, or magnesium, nor will it affect rubber, plastics, or wood.

For further information write to Industrial Synthetics Corp., Dept. C&E, 200 W. Walnut St., Chicago, Ill., or use the Request Card at page 18. Circle No. 6.

TOUGH JOBS CALL FOR JOYCE JACKS ... *Yello-Jackit* models to lift or shift every work load!

Big power for vertical jacking ... full power for horizontal pushing ... versatile power to lighten labor, cut job time, assure dependability and safety. See the whole husky line-up, 3 tons to 100 tons capacity, at your Joyce distributor today, or write to Joyce for distributor nearest to you!



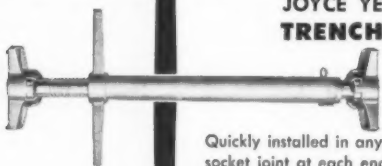
NEW JOYCE YELLO-JACKIT LIFTMASTER HAND HYDRAULIC JACKS

3 to 100 ton capacities
Eight models. Rugged, lightweight screw extension type ram with fractional rise control. High efficiency permits short handle operation in close quarters.



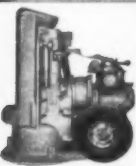
JOYCE YELLO-JACKIT RATCHET JACKS

Rugged, precision-built models of 5 to 20 tons capacity, properly balanced for easy carrying.



JOYCE YELLO-JACKIT TRENCH BRACES

Quickly installed in any width trench ... ball and socket joint at each end adjusts to any angle ... steel screw ... available with or without pipe.



JOYCE YELLO-JACKIT AIR MOTOR JACKS

Capacities of 20, 35, 50, 75 and 100 tons with or without exclusive Joyce Toe Lift. Lightweight for easy portability on their large, semi-pneumatic tires. Rugged, simple Ingersoll Rand air motor.

...and to complete
Joyce's labor saving
Jack Line



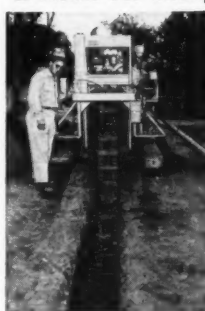
THE
JOYCE-CRIDLAND CO.
2027 E. FIRST STREET, DAYTON 3, OHIO

CANADA: Midland Foundry & Machine Co., Ltd., Midland, Ont.

For more facts, use Request Card at page 18 and circle No. 310



Pow-R-Ditchers A Model For Nearly Every Need

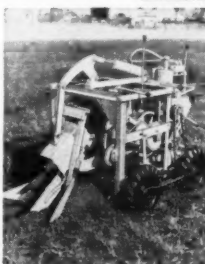


Model 524T Pow-R-Ditcher

Lowest priced BIG ditcher on the market! Digs 8"-24" wide at speeds of 1'-15' per minute. One man operation. Ideal for contractors, municipalities, utilities, etc.

Model 4T Pow-R-Ditcher

The Vermeer "Midget Ditcher" digs 6"-14" wide and is only 6' high, 13' long, 48" wide. Easily transported on a pick-up truck. Very maneuverable and ideal for footings, cable, gas, water and sewage lines.



Model W-2 Pow-R-Ditcher

Smallest of the Pow-R-Ditchers, the W-2 digs 2 1/2"-4" wide and 3' deep. For gas service, electrical service and shallow water lines.

Write For Literature and Low Prices on the Complete Vermeer Pow-R-Ditcher Line

Thousands of Pow-R-Ditchers used from coast to coast. Learn what low ditcher prices really mean! Write for name of nearest dealer.

VERMEER
MANUFACTURING CO.

1437 W. WASHINGTON • PELLA, IOWA

For more facts, circle No. 311

CONTRACTORS AND ENGINEERS



Model B Tournapulls are now offered with either a torque converter or conventional manual-type transmission. The torque-converter version is available with any of the standard "B" size interchangeable trailing tools.

Offer torque-converter version of transmission

A new torque-converter version of the Model "B" Tournapull is announced by the LeTourneau-Westinghouse Co.

The new unit consists of a single stage, four element torque converter combined with a heavy-duty, power-shift gear box. Four forward and two reverse ranges reportedly provide the equivalent of an infinite number of gear ratios with speeds up to 30 mph.

For further information write to the LeTourneau-Westinghouse Co., Dept. C&E, 2301 N. Adams St., Peoria, Ill., or use the Request Card that is bound in at page 18 of this issue. Circle No. 68.

New bronze-head tripods feature twist resistance

A new line of bronze-head wide-frame tripods for engineering instruments, said to provide maximum resistance to twisting, is announced by C. L. Berger & Sons, Inc.

The tripod head is 3½ inches in diameter and has 8 threads to the inch. Shoes are 7 inches long and have oversize push-down spurs which are heavily trussed for additional strength. The hardened steel tripod points are easily replaceable.

Stiff-leg and extension-leg models are available.

For further information write to C. L. Berger & Sons, Inc., Dept. C&E, 37 Williams St., Boston 19, Mass., or use the Request Card at page 18. Circle No. 3.



New portable heater is lightweight, powerful

Its Model 1700 blower-type portable heater is announced by the Insto-Gas Corp.

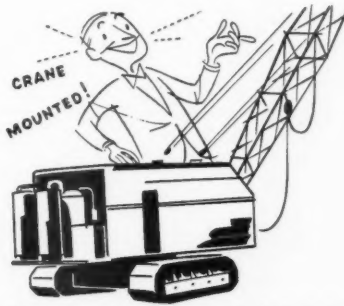
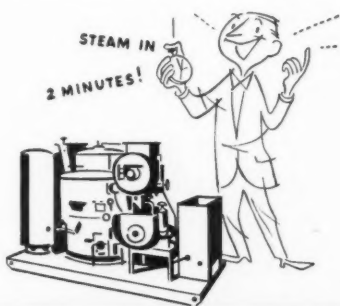
The Model 1700 operates on LP gas. According to the manufacturer, it has a heat output comparable with a forced air furnace, yet weighs only 30 pounds and occupies only 2½ cubic feet of space.

Safety controls on the new unit include a Thermocouple flame detector and relay that shuts off the gas in the event of power or flame failure.

The fan motor operates on 110 to 115-volt, 60 cycle ac. Heating capacity can be adjusted from 10,000 to 120,000 Btu per hour.

The Model 1700 is 27¾ inches long, 13¾ inches wide, and 13¾ inches high.

For further information write to the Insto-Gas Corp., Dept. C&E, 998 E. Woodbridge Ave., Detroit 7, Mich., or use the Request Card that is bound in at page 18 of this issue. Circle No. 122.



LITTLEFORD

KWIK-STEAM ... BEST GENERATOR

FOR PILE DRIVING

- ★ Steam in 2 minutes from a cold start!
- ★ 135 bhp—can drive 11-B-3 M-T hammer
- ★ Completely automatic operation—burner cycles on and off as required
- ★ Saves 50% on fuel and labor
- ★ No wasteful "head of steam"
- ★ No steam explosion risk—approved safety controls
- ★ Easy to move, weighs only 6000 lbs.
- ★ Highly mobile—can be mounted on crane, barge or truck

Littleford Kwik-Steam—modern steam generator for pile driving—fast, economical, mobile. Send for bulletin 22. Littleford Bros., Inc., LB 214A—485 E. Pearl St., Cincinnati 2, Ohio.



KWIK-STEAM DESIGNED EXCLUSIVELY FOR GENERATING STEAM FOR PILE DRIVING, READY-MIX, CONCRETE CURING PRODUCTS, ASPHALT PLANTS

For more facts, use Request Card at page 18 and circle No. 312

INGRAM

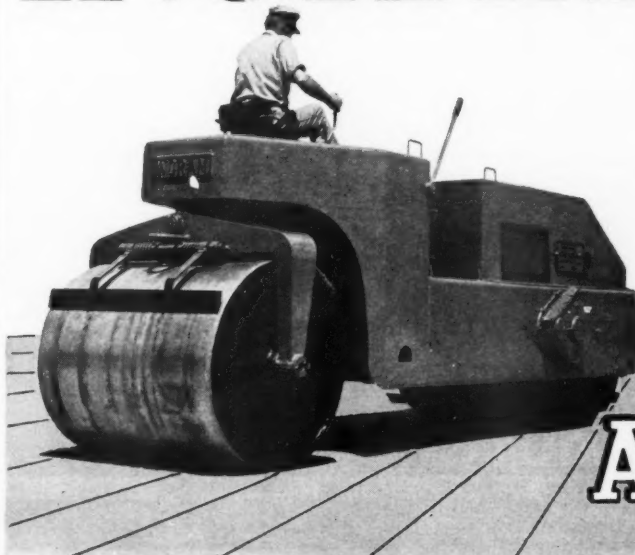
rollers

TANDEM
and

3 WHEEL

ROLLERS

AVAILABLE IN ALL SIZES



Acme IRON WORKS
P.O. BOX 2020 • SAN ANTONIO 6, TEXAS

For more facts, use Request Card at page 18 and circle No. 313

Product Parade

For more facts on these products, circle the indicated number on the Request Card at page 18.

WINSLOW—PORTABLE TRUCK SCALE

THE CONTRACTORS' SPECIAL SCALE



For use at temporary and permanent locations—at stock piles and by bituminous material contractors at the job site. Cap.: 15-18-20-30, 50 tons
Write us for name of your nearest distributor

WINSLOW SCALE COMPANY P.O. Box 1198
Terre Haute, Indiana

For more facts, use Request Card at page 18 and circle No. 314

Faster Adjustment from TOP of Deck




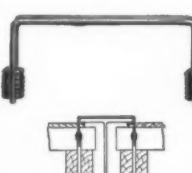
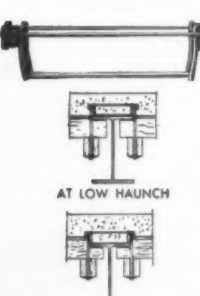
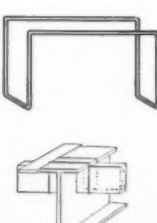
TOTAL SAFE LOAD ON BOTH COIL BOLTS
IS 10,000 LBS., OR 5,000 LBS. PER BOLT

WHEN HANGING FORMS WITH SUPERIOR PLATE HANGER FRAMES



With Superior Plate Hanger Frames the installation and necessary adjustment to bring the deck forms tight against the flange are from above the deck. Coil Bolts are passed through and secured from above with coil nuts. Bolts are easily removed without binding because, (1) nuts are square and will not turn; (2) embedment of the bolts in the concrete is at a minimum since the plate is only 1/2" above the flange.

**FOUR OTHER SUPERIOR WAYS TO HANG FORMS FROM
STEEL BEAMS AND GIRDERS ON BRIDGE SUPERSTRUCTURES**

<h4 style="text-align: center;">STANDARD COIL HANGER FRAME</h4>  <p>When hanging forms where specifications do not permit any hanger wire to be exposed after stripping, use Superior Standard Hanger Frames. Detail at left shows their use with double ledgers, 1/2" coil bolts, and flat washers. Total safe load on both bolts for Type 10M is 10,000 lbs., or 5,000 lbs. per bolt. For Type 6M, total safe load on both bolts is 6,000 lbs., or 3,000 lbs. per bolt.</p>	<h4 style="text-align: center;">COIL BEAM SADDLE</h4>  <p>On jobs where hanger wires may be cut after stripping the forms, use Superior Coil Beam Saddles. The Coil Bolts allow for any variation in lumber and flange thickness and tightening the bolts pulls the forms tightly against the flanges. Forms are easily stripped. Safe load is 6,000 lbs. per saddle, or 3,000 lbs. for each 1/2" Coil Bolt. Coil Beam Saddles are also furnished for 3/4" and 1" bolts.</p>
<h4 style="text-align: center;">SPECIAL HANGER FRAME</h4>  <p>The design of certain bridge superstructures allows for the permanent deflection of the beams or girders due to the pre-calculated dead load. This deflection is compensated by a concrete haunch of varying depth on the upper flange. Superior Special Coil Hanger Frames were developed to meet this field condition, at the same time avoiding any exposed hanger wire. The extent to which the 1/2" coil Bolts are threaded into the coils allows for these varying haunch depths from maximum to zero. (See detail). Total safe load per frame is 10,000 lbs., or 5,000 lbs. per 1/2" bolt.</p>	<h4 style="text-align: center;">WIRE BEAM SADDLE</h4>  <p>Wire Beam Saddles are used to hang centering joists from structural steel beams when the beams are not fireproofed with concrete. On non-fireproofed structures the load is determined by the allowable spacing of centering joists rather than the capacity of the hanger. Available in three gauges and sizes as required. Will carry safely, total loads of 2,500 lbs. to 6,000 lbs. Layouts and estimates will be sent upon receipt of plans or quantities. No obligation.</p>

WORKING PARTS (Bolts and washers) are returnable. Layouts and estimates for Superior Hangers are available without obligation.

SUPERIOR CONCRETE ACCESSORIES, INC.

9301 King St., Franklin Park, Ill. (A Suburb of Chicago)

New York Office
1775 Broadway, New York 19, N. Y.

Pacific Coast Plant
2100 Williams St., San Leandro, Calif.

For more facts, use Request Card at page 18 and circle No. 315

Electric handsaw first in new line

A new electric handsaw designed to cut metal, plastic, and wood, and featuring high horsepower output for fast, rugged cutting action, has been introduced by the Henry Disston Division of H. K. Porter Co., Inc.

Designated the Disston D-23, the new saw is a 5 1/4-pound tool of saber-saw design. It is the first and largest model in a complete line to be brought out during the coming year.

According to the manufacturer, the D-23 has "Orbite action," cutting into the material on the upstroke and backing away from it on the downstroke, thereby increasing cutting speed and assuring a cleaner cutting



edge.

The new saw is said to have been tested in comparison with virtually every other saw on the market, and is reported to be 15 to 50 per cent faster in its cutting action. It has the highest output horsepower of any of the saws tested, the company further claims, and is the only saw of the reciprocating type with 100 per cent ball and needle bearings and no friction bearings. There are three ball bearings and nine needle bearings.

A 3-amp motor operates the tool at 3,800 strokes per minute. The D-23 has a pedestal base which facilitates blade changing. It can cut bevels, scrolls, miters, straight lines, or circles.

Among the features the new Disston saw offers is a detachable cord set. The connecting cord can be completely separated from the tool and stored apart from it. The feature is not only a safety advantage, but makes it easier to have the tool serviced, the manufacturer reports. The saw handle is equipped with a trigger switch, and a dust blower keeps sawdust away from the cutting line and assures full visibility at all times.

For further information write to Henry Disston Division, H. K. Porter Co., Inc., 610 Tacony, Philadelphia 35, Pa., or use the Request Card at page 18. Circle No. 151.

Euclid service classes being held in Atlanta

Since September 30, factory personnel from the Euclid Division of General Motors Corp., Cleveland, Ohio, have been conducting classes in trouble shooting, maintenance, and repair methods for Euclid earthmoving equipment at the General Motors Training Center in Atlanta, Ga. The classes will continue until December 13.

All sessions are open to service personnel of Euclid owners and dealers in the southeastern states. Service instruction on the complete line of Euclid equipment is covered in a two-week general course, while classes on specific models last one week. Cutaway sections, sub-assemblies, test boards, and visual aids are being used for practical service instruction.

Enrollment applications and additional details are available from Euclid dealers or the Euclid Service Department, Cleveland, Ohio.

CONTRACTORS AND ENGINEERS

Product LITERATURE

For further information on any of the literature described in the following section, circle the designated number on the Request Card at page 18.

Steel-cutting machine—a brochure on the Wallace Roll-A-Round portable cutting unit for thin-wall steel. Close-up photos show the machine cutting through various types, shapes, and sizes of material. Data on the unit's application.

Write to the Wallace Supplies Mfg. Co., Dept. C&E, 1300 Diversey Pkwy., Chicago 14, Ill., or use the Request Card at page 18. Circle No. 38.

Flexible cushion coupling — a bulletin describing the Para-flex flexible cushion coupling. Full view and cutaway photos illustrate construction and installation features. Several pages of tables aid in the selection of the correct coupling.

Write to the Dodge Mfg. Corp., Dept. C&E, 1944 S. William St., Mishawaka, Ind., or use the Request Card at page 18. Circle No. 35.

Concrete forms—literature describing the FormCo forming technique said to completely eliminate conventional studs and walers. Details the construction and installation of the forms, and includes several case-history-type testimonials illustrated with on-the-job photographs.

Write to FormCo, Inc., Dept. C&E, 514 Rockford Trust Bldg., Rockford, Ill., or use the Request Card at page 18. Circle No. 29.

Track rollers—"Weigh the Evidence", a booklet on Cat "500" track rollers. Case histories cite the varied conditions under which the "500" rollers were field tested. Illustrated throughout with photographs and cutaways, the booklet is available in French, English, Portuguese, and Spanish.

Write to the Caterpillar Tractor Co., Dept. C&E, Peoria, Ill., or use the Request Card at page 18. Circle No. 53.

Winter-work equipment—a catalog featuring heaters, clothing, and tools for winter work. Includes more than ten different types of salamanders and on-the-job heaters, as well as data on a new oil-fired brick warmer said to heat up to 800 bricks per hour.

Write to the Goldblatt Tool Co., Dept. C&E, 1910 Walnut St., Kansas City, Mo., or use the Request Card at page 18. Circle No. 78.

Bridge strands — twenty-three pages of specifications and design data on galvanized wire, strand, and rope used on guyed structures and suspended systems of all kinds, except the gigantic suspension bridges. Also discusses both standard and special fittings for use with bridge strand or bridge rope. Illustrated with dimensional drawings.

Write to John A. Roebling's Sons Corp., Dept. C&E, 640 S. Broad St.,

Trenton 2, N. J., or use the Request Card at page 18. Circle No. 48.

Shovels, wheelbarrows — literature covering the complete line of shovels, spades, scoops, post hole diggers, and wheelbarrows from The Wood Shovel & Tool Co. Includes data on dimensions, weights; illustrated with photographs.

Write to The Wood Shovel & Tool Co., Dept. C&E, Park Ave., Piqua,

Move Earth at Lower Cost Than Ever Before!



JOHN DEERE 820 DIESEL TRACTOR and Hancock 8-Yard Elevating Scraper

YES, it's true! Whatever your job—performance records show that you can move more dirt faster than with any other unit of equal bowl capacity.

The John Deere "820" Diesel Tractor with its 67 engine horsepower is a proved economy leader. It pulls the 8-yard scraper for only pennies per hour.

Independent "live" PTO drives the scraper elevator to lift the dirt from the blade into the bowl—the big reason why you move more dirt with less horsepower. There's no need for expensive auxiliary pusher power.

Two hydraulic circuits are used—one to raise and lower the blade, the other for dumping and spreading. A low-cost, heavy-duty, fast-working unit you will want to investigate. See your John Deere industrial dealer.

**"We Load,
Elevate, and Spread
80 to 150 Yards
per Hour"**



My business is moving dirt, mostly in highway construction. The John Deere Tractor and latest Hancock industrial scraper opened our eyes to what we believe to be the ultimate in loading, elevating, and spreading dirt. We have worked in everything from blown sand to what have you. I heartily recommend this advanced designed equipment to any contractor or individual with a dirt-moving problem.

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Roswell, New Mexico
Contractor

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For more facts, use coupon, or Request Card at page 18 and circle No. 317

Product Literature

Ohio, or use the Request Card at page 18. Circle No. 103.

Forming system—literature on the Gates horizontal rod forming system. Photographs illustrate the rapidity with which concrete foundations of various kinds can be laid with this system. Stresses its usefulness in forming complex curves.

Write to Gates & Sons, Inc., Dept. C&E, 80 S. Galapago St., Denver 23, Colo., or use the Request Card at page 18. Circle No. 108.

Concrete curing—a booklet describing the Hunt process of concrete curing. Discusses its advantages and contains directions for its application. On-the-job photographs.

Write to the Hunt Process Co., Inc., Dept. C&E, 7012 Stanford Ave., Los Angeles, Calif., or use the Request Card that is bound in at page 18. Circle No. 107.

BETTER LUBRICATION



FOR BALL AND ROLLER BEARINGS

BALL BEARING LUBRIPLATE

... a most effective grease type lubricant that also protects ball and roller bearings against rust and corrosion. Highly recommended for speeds up to 5,000 RPM and temperatures up to 300° F.

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For nearest LUBRIPLATE distributor see Classified Telephone Directory. Write for free "LUBRIPLATE DATA Book". ... a valuable treatise on lubrication. LUBRIPLATE DIVISION, Fiske Brothers Refining Company, Newark 5, N. J. or Toledo 5, Ohio.



For more facts, circle No. 318

Dozer-snowplow—a descriptive sheet on the Western hydraulic dozer-plow for use with Willys vehicles. Includes data on the construction of the unit, and photographs show installations for both dozing and snowplowing. Specifications included.

Write to the Western Snowplow Division, Douglas Motors Corp., Dept. C&E, 2025 W. Clybourn St., Milwaukee, Wis., or use the Request Card at page 18. Circle No. 106.

Melting kettles—literature describing the Chausse line of stationary and portable melting kettles. Each unit is illustrated with a photograph, with specifications included. Various accessories also described.

Write to the Chausse Mfg. Co., Inc., Dept. C&E, 4453 14th St., Detroit 8, Mich., or use the Request Card at page 18. Circle No. 105.

Dredging—a booklet on the completely portable Dixiedredge. Text and photographs emphasize the maximum mobility of the unit. Large cutaway drawing and specifications included.

Write to the Service Machinery Corp., Dept. C&E, North Miami, Fla., or use the Request Card at page 18. Circle No. 97.

Form rental—illustrated literature on the advantages of renting Uni-Form prefabricated forming panels. Details the construction and installation of these units, stressing a saving of time and money for the contractor.

Write to the Universal Form Clamp Co., Dept. C&E, 1238 N. Kostner Ave., Chicago, Ill., or use the Request Card at page 18. Circle No. 101.

Low-bed trailer—a fact sheet on the Challenger Model TD-18-RG. Provides general specifications, and is illustrated with a photograph and a dimensional drawing of the unit.

Write to Talbert Trailers, Inc., Dept. C&E, 7950 W. 47th St., Lyons, Ill., or use the Request Card at page 18. Circle No. 159.

Road forms—a new, fully illustrated bulletin giving complete design details, specifications, and sizes of Rex road forms. Bulletin No. 57-165.

Write to the Chain Belt Co., Dept. C&E, 4701 W. Greenfield Ave., Milwaukee, Wis., or use the Request Card at page 18. Circle No. 24.

Concrete additives—an illustrated bulletin on Kapco curing compound and Kapco air-entraining agent. Discusses application, packaging, types available, and compliance with particular specifications.

Write to the Presstite-Keystone Engineering Products Co., Dept. C&E, 39th and Chouteau Ave., St. Louis 10, Mo., or use the Request Card at page 18. Circle No. 76.

Welding equipment—a catalog on Lincoln automatic welding supplies. Describes and illustrates various electrodes and fluxes, discussing the selection and application of each. Text is illustrated with photographs, and charts show typical properties of welding deposits, as well as offer a guide for flux selection.

Write to the Lincoln Electric Co., Dept. C&E, P. O. Box 3115, Cleveland 17, Ohio, or use the Request Card at page 18. Circle No. 47.

Joint-sealing equipment—a brochure describing several units of Dependon joint-sealing equipment. Offers general information and specifications on Models M-A400 and M-A150 melter applicators, Model 2MXA mixer-applicator, and Model J. C. power brush. Illustrated with photographs.

Write to the Cutler Engineering Co., Dept. C&E, 5435 W. 63rd St., Chicago 38, Ill., or use the Request Card at page 18. Circle No. 51.

Stump cutter—a descriptive sheet on the Vermeer Pow-R-Stump cutter said to reduce to chips the largest stump to a depth of 10 inches below ground level. Photos show the machine in action. Specifications included.

Write to the Vermeer Mfg. Co., Dept. C&E, P. O. Box 188, Pella, Iowa, or use the Request Card at page 18. Circle No. 143.

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POWER-CARTS



CONCRETE-CARTS



WHEELBARROWS



GAR-BRO

Selection Chart

Equipment	Load Capacity	Maximum Travel Distance	Speed	Capacity* Per Hour
POWER-CARTS	9 to 12 cu. ft.	1000 ft.	15 mpr.	15 to 20 cu. yds.
CONCRETE-CARTS	6 to 8 cu. ft.	200 ft.	walking	3 to 5 cu. yds.
WHEELBARROWS	3 to 5 cu. ft.	200 ft.	walking	1 to 1½ cu. yds.

*according to hauling distance

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SELECTION OF EQUIPMENT is most important in planning any concrete job—it can make the difference between profit and loss. That's why Gar-Bro offers check lists to guide you in considering all job factors. Remember, Gar-Bro builds the only complete line of concrete handling equipment. And only Gar-Bro dealers can give you unbiased advice in the selection of the best equipment. Write for catalog!

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Concrete Handling Equipment

For more facts, use Request Card at page 18 and circle No. 320

CONTRACTORS AND ENGINEERS

Snowplow-loader—a bulletin on Ram rotary snowplow-loaders for use with HF, HR, HY, HU, HH, and HO Payloaders. According to the literature, Ram units can handle 10-foot drifts in 7½-foot lanes with ease, blowing the snow to a distance of 100 feet. Action photos; specifications.

Write to the Ram Equipment Co., Inc., Dept. C&E, 5209 W. Broadway, Minneapolis 22, Minn., or use the Request Card at page 18. Circle No. 134.

Versatile rake—a booklet describing the York Model RE general purpose rake. On-the-job photographs illustrate the unit's wide range of application, including bulldozing with a grader blade attachment. Specifications are given.

Write to the York Modern Corp., Dept. C&E, P. O. Box 110, Unadilla, N. Y., or use the Request Card at page 18. Circle No. 135.

Trucks—a catalog describing Ford trucks for a wide range of construction work. Includes data on cab interiors, chassis, and Ford heavy-duty engines. Photographs; specifications.

Write to the Ford Division of the Ford Motor Co., Dept. C&E, P. O. Box 608, Dearborn, Mich., or use the Request Card at page 18. Circle No. 54.

Bulk material conveyors—an illustrated folder stressing the versatility of Barber-Greene conveyors. On-the-job photographs show the units in eighteen different applications.

Write to the Barber-Greene Co., Dept. C&E, 400 N. Highland Ave., Aurora, Ill., or use the Request Card at page 18. Circle No. 50.

Apron feeders—a brochure on three types of heavy-duty apron feeders offered by Pioneer Engineer-

ing. Discusses the three types of drive available for these feeders, as well as the horsepower requirements for each. Charts, photos, drawings, and specifications.

Write to Pioneer Engineering, Division of Poor & Co., Dept. C&E, 3200 Como Ave. S. E., Minneapolis 14, Minn., or use the Request Card at page 18. Circle No. 49.

Masonry saw—an illustrated booklet on the Clipper SuperMatic masonry saw. Emphasizes advantages of the unit's Sta-Level head and Hi-Lo control wheel.

Write to the Clipper Mfg. Co., Dept. C&E, 2800 Warwick, Kansas City 8, Mo., or use the Request Card at page 18. Circle No. 93.

Rotary compressor—a bulletin describing the Model 125 rotary compressor. Contains unit illustrations, complete specifications, and a rotary compression cycle diagram. Form No. E-267.

Write to the Davey Compressor Co., Dept. C&E, Franklin Ave., Kent, Ohio, or use the Request Card at page 18. Circle No. 94.

Surface material spreader—a booklet on the Gar Wood Buckeye Model 5 surface material spreader. Lists and illustrates with photographs and drawings the construction features of the unit, with specifications included.

Write to the Gar Wood Industries, Inc., Dept. C&E, 36253 Michigan Ave., Wayne, Mich., or use the Request Card at page 18. Circle No. 96.

Soil-testing equipment—a 128-page catalog covering the complete line of Soiltest, Inc. Every piece of equipment, from a single, small item to a complete laboratory for soils, concrete, and asphalt testing, is described and illustrated.

Write to Soiltest, Inc., Dept. C&E, 4711 W. North Ave., Chicago 39, Ill., or use the Request Card at page 18. Circle No. 66.

Portable crushing plant—a brochure on the four models of the Mohawk portable primary crushing plant. Details major components of the plant, and is illustrated with drawings and on-the-job photographs. Specifications included.

Write to the Lippmann Engineering Works, Inc., Dept. C&E, 4603 W. Mitchell St., Milwaukee 14, Wis., or

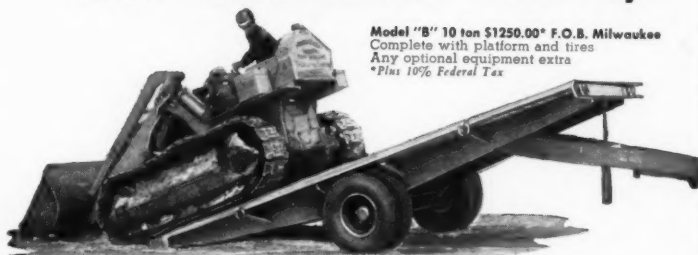
use the Request Card at page 18. Circle No. 70.

Rotary air compressor—a bulletin describing the new Le Roi 600 rotary air compressor. Illustrated with close-up views of 33 features, as well as several over-all views of the machine. General specifications are listed. Bulletin P-106B.

Write to the Le Roi Division, Westinghouse Air Brake Co., Dept. C&E, 3716 W. Wisconsin Ave., Milwaukee 1, Wis., or use the Request Card at page 18. Circle No. 55.

Off-the-highway haulers—a catalog describing the IH Models 95 and 65 Payhauler. The catalog is divided into four sections, describing Payhauler advantages on each phase of the haul cycle: spotting, loading, hauling, and dumping. Contains close-up photos of components that contribute to the advantages of the

Don't take chances with make-shift rigs... load fast! load safely! with MILLER Tilt-Top



Model "B" 10 ton \$1250.00* F.O.B. Milwaukee
Complete with platform and tires
Any optional equipment extra
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Make-shift, "home-welded" truck platforms, or "jerry-built" trailer rigs may seem like a cheap way to haul... but they can be plenty expensive when something gives way under several thousand pounds of equipment. Just one slip... could cost you much more than a ruggedly built MILLER Tilt-Top. On any model you choose — its big, broad platform merges with the ground for the fastest, safest, drive-on loading you've ever tried. Available in a variety of single and tandem axle models from 3 to 13 ton capacities... Miller Tilt-Tops also offer a wide range of platform sizes... all decked with tough, traction sure, 2" oak. Don't take chances loading expensive equipment or risking serious personal injury on make-shift rigs... be fast, be safe with a MILLER Tilt-Top!

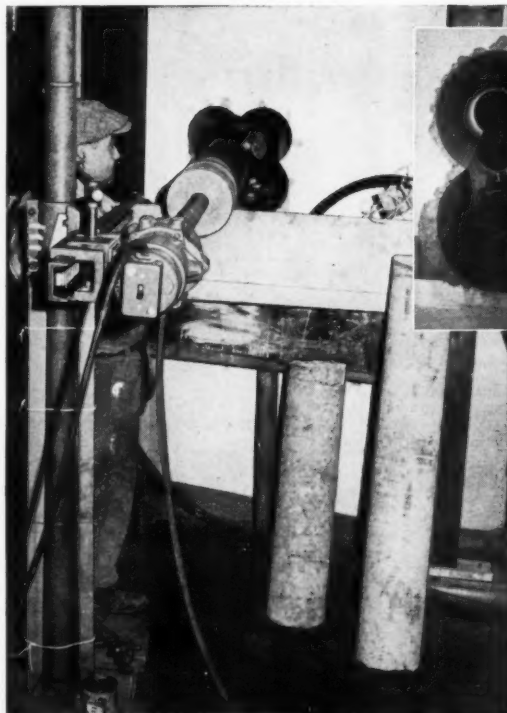
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8" HOLES
THROUGH 7-FOOT
REINFORCED
CONCRETE WALL
AT 1" PER MINUTE**

Job: cutting 27" x 10" window opening in existing 7½" reinforced concrete wall housing cyclotron unit at Harvard University for observation window. Air hammers or carbide bits would have been impractical and the entire wall would have had to be rebuilt. A Truco Diamond Drilling Machine with 78 rpm heavy duty drill motor and 8" bits was used to drill eight holes. Each hole was drilled in two four-foot stages. Pictures show group of four holes from each end.

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WHEEL TRUEING TOOL CO.**
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For more facts, use Request Card at page 18 and circle No. 322

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Full-Shift COMFORT...

Men like to wear it because it's lightweight, with wrinkle-free adjustable head band and exclusive new better-than-ever snap-in sling.

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Strong plastic construction that tops all Government safety standards, insulates against heat and sun and withstands over 10,000 volts.

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For more facts, circle No. 323

Product Literature

unit on each phase of the cycle. Catalog CR-603-G.

Write to the Construction Equipment Division, International Harvester Co., Dept. C&E, 180 N. Michigan Ave., Chicago 1, Ill., or use the Request Card at page 18. Circle No. 61.

Hydraulic scraper—a brochure describing the Oliver Model 990 hydraulic scraper. Discusses the construction and performance of the unit, and is generously illustrated with photographs and drawings. Specifications included.

Write to The Oliver Corp., Dept. C&E, 400 W. Madison St., Chicago 6, Ill., or use the Request Card at page 18. Circle No. 71.

Prestress wire—a booklet describing the properties and application of American Super-Tens and high strength strand for prestressed concrete. Text is amplified by charts and tables showing typical stress-strain curves and variations of minimum breaking strength. Further illustrated with photos and dimensional drawings.

Write to the American Steel & Wire Division, United States Steel Corp., Dept. C&E, 1420 Rockefeller Bldg., Cleveland 13, Ohio, or use the Request Card at page 18. Circle No. 85.

Compression, flexure tester—a bulletin describing the Forney Model QC-100-SLD compression and flexure testing machine. Details the important components of the unit, and gives data on optional accessories.

Write to Forney's Inc., Tester Division, Dept. C&E, P. O. Box 310, New Castle, Pa., or use the Request Card at page 18. Circle No. 87.

Shovels, draglines, cranes—a well-illustrated booklet describing the Manitowoc Model 3000 series of 2-yard shovels, draglines, and 40 to 50-ton cranes. Photographs, dimensional drawings, tables.

Write to the Manitowoc Engineering Corp., Dept. MRS, Dept. C&E, 16th & River Sts., Manitowoc, Wis., or use the Request Card at page 18. Circle No. 88.

Pumping equipment—a bulletin describing Sprague & Henwood pumping units for soil sampling, core drilling, and pressure grouting. Lists and illustrates several models, with specifications for each. A pump selection chart is furnished. Bulletin No. 370.

Write to Sprague & Henwood, Inc., Dept. C&E, 221 W. Olive St., Scranton 2, Pa., or use the Request Card at page 18. Circle No. 83.

Portable gravel-screening plant—a folder describing the Pioneer Hydratol gravel-grading and screening plant. According to the literature, this portable unit is completely hydraulically controlled; can be set up and ready to operate within 30 minutes; and will screen over 100 tons of gravel per hour. Illustrated, with specifications included.

Write to Pioneer Industries, Inc., Dept. C&E, 2700 Hawkeye Drive, Sioux City, Iowa, or use the Request Card at page 18. Circle No. 118.

Winch hoists—a brochure describing Lug-All winch hoists, lightweight units with capacities to 2 tons. Text and drawings stress the versatility of the device. Information on accessories, and a specification chart included.

Write to the Lug-All Co., Dept. C&E, 355 E. Lancaster Ave., Haverford, Pa., or use the Request Card at page 18. Circle No. 130.

Tractor-shovel—a specification sheet on the Model HO four-wheel-drive Payloader. A full-view photograph and a dimensional drawing of the unit illustrate the text.

Write to The Frank G. Hough Co., Dept. C&E, 822 Seventh Ave., Libertyville, Ill., or use the Request Card at page 18. Circle No. 79.

Hydraulic angledozzer—a bulletin describing the power-angling dozer blade for Case TerraTrac 80 and 100-hp crawler tractors. Includes charts comparing tractor power, speeds, and blade action with competitive angledozers, along with data on the counter-rotating Terramatic transmission. Photos, drawings, specifications.

Write to the J. I. Case Co., Dept. C&E, Racine, Wis., or use the Request Card at page 18. Circle No. 137.

Conveyors—a comprehensive catalog on Pioneer Continuflo conveyors. Covers conveyor frames, terminal equipment, drives, belting, idlers, accessories, and special-purpose conveyors. Drawings, photographs, charts, tables.

Write to Pioneer Engineering, Dept. C&E, 3200 Como Ave., Minneapolis 14, Minn., or use the Request Card at page 18. Circle No. 77.

Self-leveling shaft sinker—a bulletin describing the SDR self-leveling shaft sinker and illustrating its on-the-job use. Six half-tones show how the shaft sinker can be lowered from top-side to drilling position at the bottom of the shaft. Another page is devoted to a case-history use of the sinker.

Write to the Le Roi Division, Westinghouse Air Brake Co., Dept. C&E, 3716 W. Wisconsin Ave., Milwaukee, Wis., or use the Request Card at page 18. Circle No. 175.

Welding blowpipe—a bulletin on the Oxweld W-47, a welding blowpipe said to be capable of welding any metal thickness from 28-gage sheet to 3-inch plate. Also describes cutting attachments for converting the unit from welding and heating to flame-cutting on all metal thicknesses up to 8 inches. Information and performance data on welding heads and cut-

ting nozzles. Illustrated with photographs, drawings.

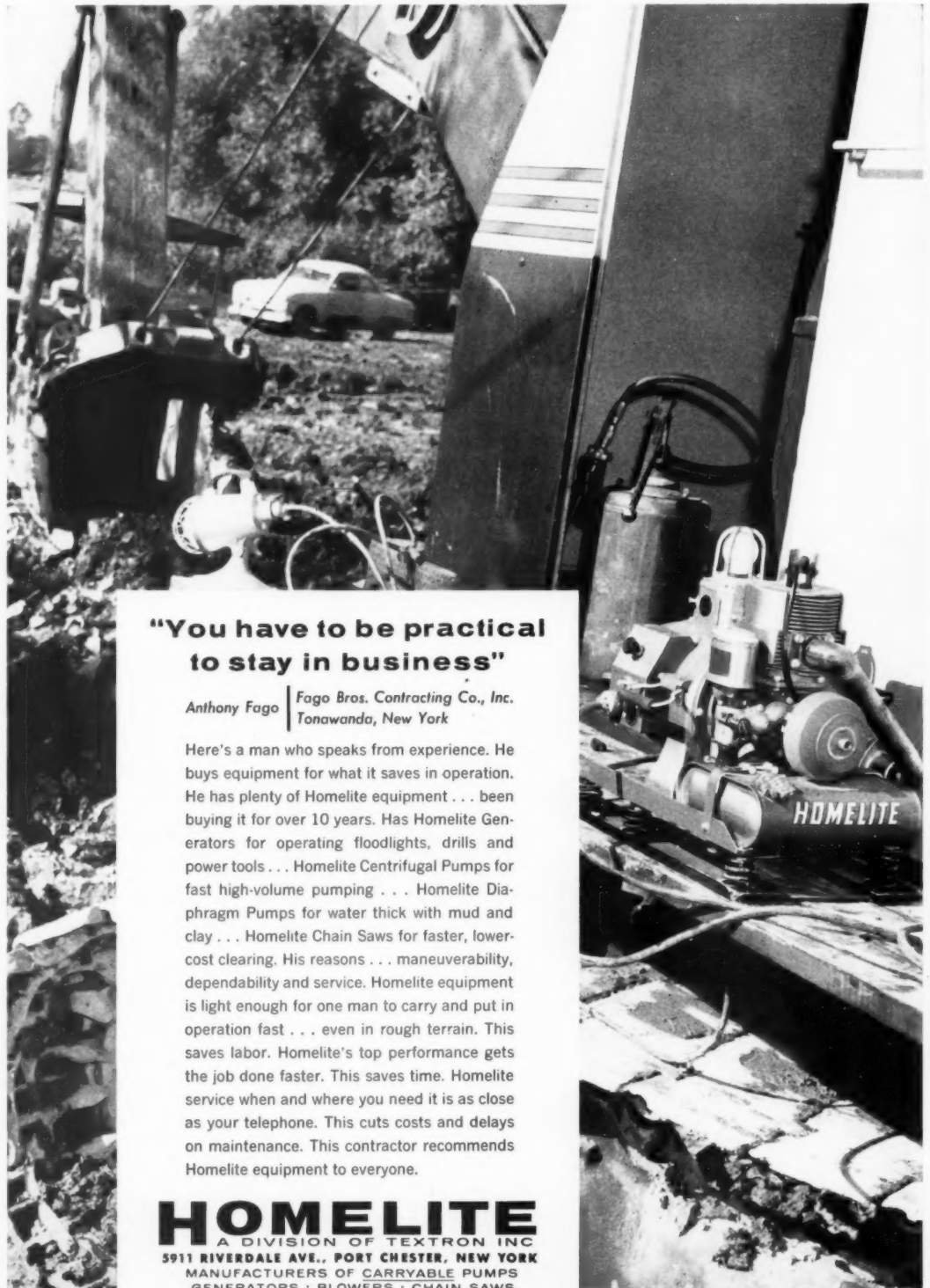
Write to the Linde Co., Division of Union Carbide Corp., Dept. C&E, 30 E. 42nd St., New York 17, N. Y., or use the Request Card at page 18. Circle No. 84.

Detachable gooseneck trailers—literature on Rogers Hydrau-Lift detachable gooseneck trailers. Stresses the advantages of the special method by which the gooseneck is raised and lowered. Illustrated with photographs.

Write to the Rogers Bros. Corp., Dept. C&E, 100 Orchard St., Albion, Pa., or use the Request Card at page 18. Circle No. 80.

Mobile construction machinery—a generously illustrated booklet covering virtually the entire IH mobile construction machinery line. On-the-job photographs show, among others, crawler tractors, Payscraper

FOR MEN WHO BUY EQUIPMENT FOR WHAT IT SAVES



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Here's a man who speaks from experience. He buys equipment for what it saves in operation. He has plenty of Homelite equipment... been buying it for over 10 years. Has Homelite Generators for operating floodlights, drills and power tools... Homelite Centrifugal Pumps for fast high-volume pumping... Homelite Diaphragm Pumps for water thick with mud and clay... Homelite Chain Saws for faster, lower-cost clearing. His reasons... maneuverability, dependability and service. Homelite equipment is light enough for one man to carry and put in operation fast... even in rough terrain. This saves labor. Homelite's top performance gets the job done faster. This saves time. Homelite service when and where you need it is as close as your telephone. This cuts costs and delays on maintenance. This contractor recommends Homelite equipment to everyone.

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MANUFACTURERS OF CARRYABLE PUMPS
GENERATORS • BLOWERS • CHAIN SAWS

For more facts, use Request Card at page 18 and circle No. 324

CONTRACTORS AND ENGINEERS

Product Literature

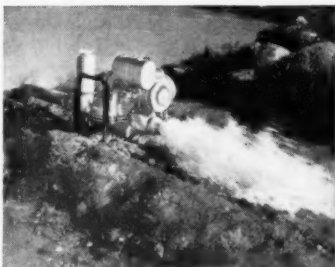
units. International Drott skid-shovels and 4-in-1 units, and Payhauler units. Catalog CR-542-G.

Write to the Construction Equipment Division, International Harvester Co., Dept. C&E, 180 N. Michigan Ave., Chicago 1, Ill., or use the Request Card at page 18. Circle No. 58.

Hard-facing electrodes — a booklet describing the chemical composition, some properties, typical applications, application procedures, and packaging for the 12 Haynes alloys that are available as electrodes. These include eight iron-base alloys, three cobalt-base alloys, and Haytellite cast tungsten carbide.

Write to the Literature Distribution Section, Haynes Stellite Co., Division of Union Carbide Corp., Dept. C&E, 30-20 Thompson Ave., Long Island City 1, N. Y., or use the Request Card at page 18. Circle No. 23.

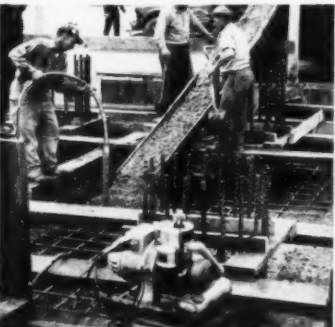
Full Line of Carryable Construction Equipment Now Offered by Homelite



Carryable Diaphragm Pump . . . This self-priming, 120 pound diaphragm pump will handle water in the thickest sand, muck, or mud. Capacity: 5,000 g.p.h. Size: 3". Complete line of centrifugal pumps are also available in sizes from 1½" to 3".



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One-Man Electric Vibrator . . . It takes only one man to place concrete with powerful, Homelite high-cycle or universal electric concrete vibrators. Carryable Homelite generator provides power for high-cycle vibrators and 110 volt DC for all universal vibrators, tools and floodlights.

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PORT CHESTER, NEW YORK

For more facts, circle No. 325

Bulldozers—a bulletin containing charts comparing features and performance of Case TerraTrac 80 and 100-hp bulldozers with competitive makes. Features of new Tilt-Crown dozers are shown in eight pages of photos and operational drawings. Cutaway illustration shows oscillating and load-equalizing action of the Case torsion-bar track suspension system.

Write to the J. I. Case Co., Dept. C&E, Racine, Wis., or use the Request Card at page 18. Circle No. 165.

Cement coloring—a brochure describing the uses and application of Sonobrite, alkali, and fade-resistant integral pigments for coloring concrete, mortar and cement mixtures. Illustrates the five available shades: tile red, green, buff, brown, and black.

Write to Building Products Division, L. Sonneborn Sons, Inc., Dept. C&E, 404 Fourth Ave., New York, N. Y., or use the Request Card at page 18. Circle No. 57.

Truck crane—a brochure describing the Gar Wood Model 75BT 20-ton truck crane. Text is illustrated with full-view and close-up photos of the machine, and includes data on several available attachments. Crane carrier specifications.

Write to Gar Wood Industries, Inc., Dept. C&E, 36253 Michigan Ave., Wayne, Mich., or use the Request Card at page 18. Circle No. 124.

Shaft-mucking grapple—a bulletin describing the Joy JPC-200 pneumatic grapple for shaft mucking. Details are given on operation and application of the grapple. Schematic drawings show how it is used in several types of shafts. Specifications included. Bulletin No. 4-21.

Write to the Joy Mfg. Co., Dept. C&E, 333 Henry W. Oliver Bldg., Pittsburgh 22, Pa., or use the Request Card at page 18. Circle No. 75.

Asphalt plants—general information on several units of Iroquois asphalt-paving equipment. Photographs depict typical Iroquois installations.

Write to the Iroquois Division, Posey Iron Works, Inc., Dept. C&E, 560 S. Prince St., Lancaster, Pa., or use the Request Card at page 18. Circle No. 82.

Signs—a comprehensive catalog from Lyle Signs, Inc. Describes and illustrates signs of all types, including barricades for construction sites.

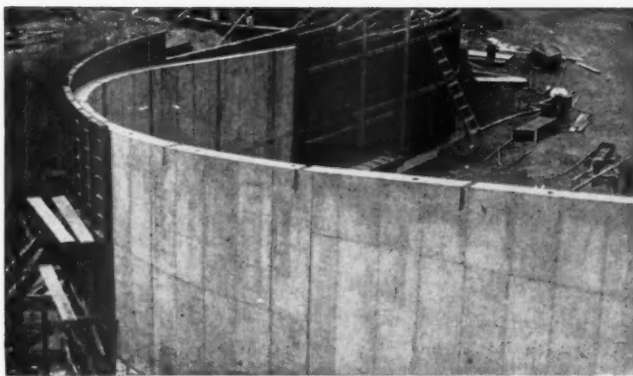
Write to Lyle Signs, Inc., Dept. C&E, 2720 University Ave. S. E., Minneapolis, Minn., or use the Request Card at page 18. Circle No. 138.

Wire rope—an illustrated fact sheet describing the principal causes of wire-rope abrasion, and listing numerous practical suggestions for minimizing its effects. Bulletin No. 101.

Write to the Leschen Wire Rope Division, H. K. Porter Co., Inc., Dept. C&E, 2727 Hamilton St., St. Louis 12, Mo., or use the Request Card at page 18. Circle No. 81.

Gardner-Denver plans expansion of division

A new factory for the forging facilities of Gardner-Denver's Denver Division will be built on 30 acres of land near Derby, Colo. When the plant is completed, forging equipment now located at the present plant will be moved to the new location so that the facilities at 39th Ave. and Williams St. in Denver can be expanded. The Quincy, Ill., firm now employs about 1,000 people at the Denver plant, where rock drills and related equipment for road construction and pipe laying are manufactured.



"Snake-Style" wall for Omaha Auditorium grounds. Peter Kiewit & Sons, Omaha, Gen. Con.

Symons Forms on Serpentine Retaining Wall

Symons Forms were used exclusively to form this serpentine retaining wall which is 20 feet high at the highest point and slopes to 8 feet high at the lowest point. These walls were constructed to facilitate parking on the ground of Omaha, Nebraska's new city auditorium. Symons Forms were used for 30,000 square feet of forming on this job.

Send plans for your next job and get complete layout and cost sheet—no obligation. Catalog F-10 sent FREE upon request. Symons Clamp & Mfg. Co., 4251 Diversey Avenue, Dept. L-7, Chicago 39, Illinois.

For more facts, use Request Card at page 18 and circle No. 326



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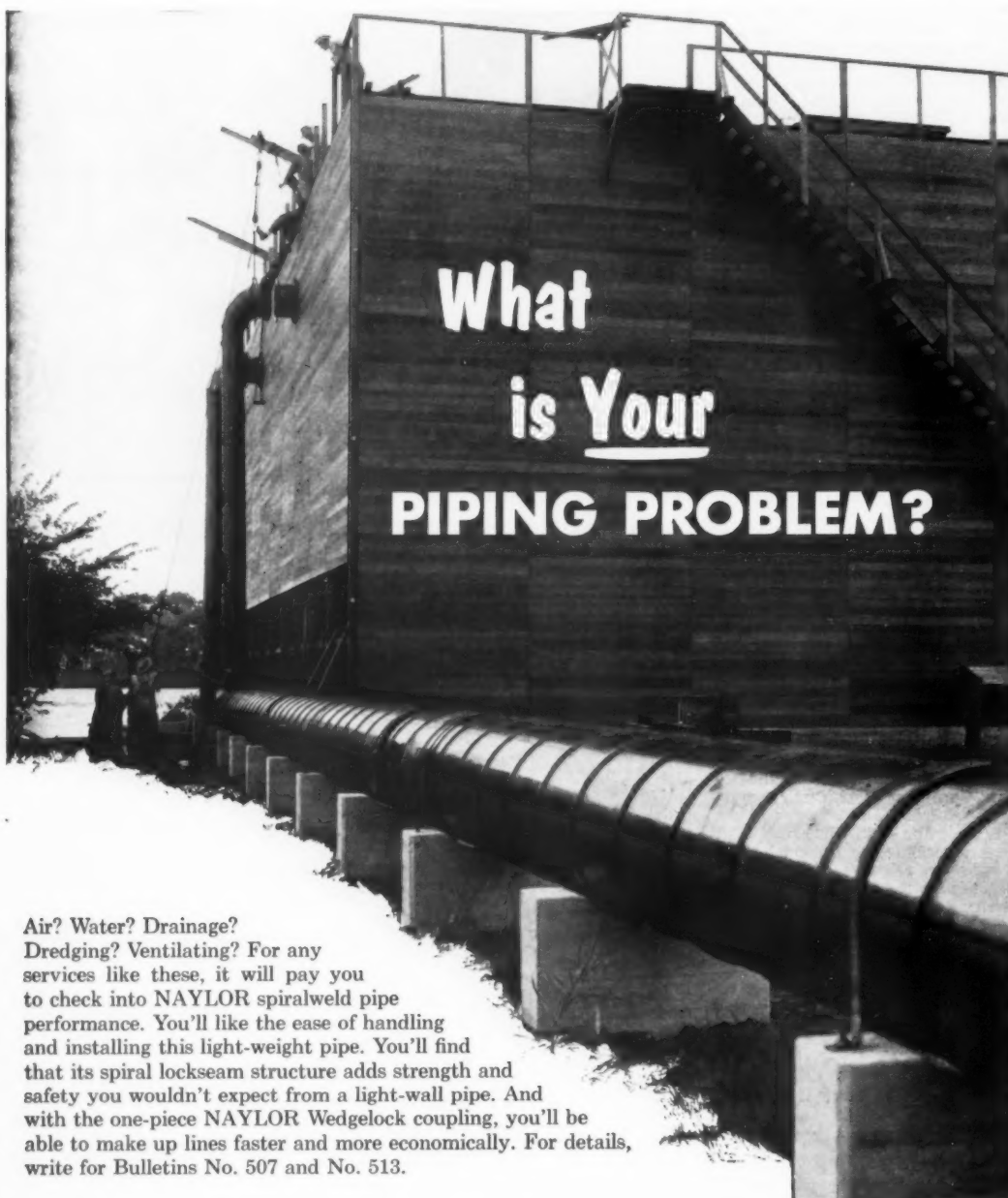
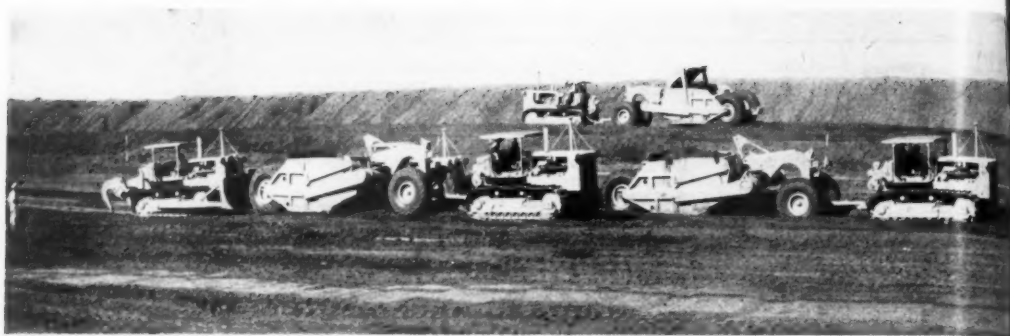
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Tractor-scraper combinations

make fast time on Sudan canal



Air? Water? Drainage? Dredging? Ventilating? For any services like these, it will pay you to check into NAYLOR spiralweld pipe performance. You'll like the ease of handling and installing this light-weight pipe. You'll find that its spiral lockseam structure adds strength and safety you wouldn't expect from a light-wall pipe. And with the one-piece NAYLOR Wedgelock coupling, you'll be able to make up lines faster and more economically. For details, write for Bulletins No. 507 and No. 513.

NAYLOR

NAYLOR PIPE COMPANY

1270 East 92nd Street, Chicago 19, Illinois



Eastern U.S. and Foreign Sales Office:
60 East 42nd Street, New York 17, New York

For more facts, use Request Card at page 18 and circle No. 328

More yards of earth are being moved each day by crawler-tractor-drawn scrapers on the Managil Canal in northern Sudan, Africa, than on any other project in the world. So say engineers who have visited the project—a 96-mile canal from Sennar to Managil.

Berger-Holzman, a combine from Wiesbaden, Germany, was awarded the contract by the Gezira board, a quasi-governmental agency set up by the Sudan Government to develop and operate 300,000 acres of now barren land. Cotton and berseem, a clover, will be grown, irrigated by waters from the Blue Nile.

The finished canal will be 200 feet wide at the base and 13 feet deep at Sennar, decreasing to 150 feet in width and 6.5 feet in depth at the Managil outlet. Side slopes will be 2 to 1. Excavated materials will form dikes on each side, 5 feet back from the lip. Each dike will be 12 feet high, 32 feet wide at the top, and have 2 to 1 slopes.

Short hauls in dry soil

Because of the hard, dry soil and the short hauls—the longest is 600 feet—Berger-Holzman decided to excavate with crawler-tractor-scraper combinations. For this project, the German combine purchased 36 Caterpillar D9 tractors, 30 Cat No. 491 Low-bowl scrapers, six No. 9 rippers, eight D6's, four No. 12 motor graders, two Cat DW20 tractors with No. 456 Low-bowl scrapers, and two Martin trailers.

With the D9's, the firm was able to work a 12 per cent 100-foot ramp, despite the difficult loading characteristics of the soil. The first 2½ feet is a very dry, loose black soil, good for growing cotton. Next is about 1½ feet of hardpan which must be ripped. Below this is a dry, hard yellow clay. Although this is difficult to load in its natural state, it becomes so powdery when ripped that it merely rolls before a partially loaded scraper like dry sand.

The earthmoving equipment was set up in groups, each having four D9's with No. 491 scrapers, a D9 pusher, a D6 to finish slopes, and a No. 12 motor grader to level roads, finish slopes, and maintain the fill. The groups started about a mile apart along the canal.

During the first month of operation, each group moved from 275 to

CONTRACTORS AND ENGINEERS

One of the four spreads of tractor-scraper combinations opens up a section of the new Magil Canal in northern Sudan. The short hauls and steep 12 per cent grades of the canal make crawler-tractors ideal for the job.

Four groups work about a mile apart on 96-mile-long canal; short hauls in dry soil are the rule on reclamation job



Dirt boils up in the bowl of a No. 456 scraper as a Cat D9 gives a pushing assist to the rig. Material being excavated from the canal is going into dikes 5 feet back from the lip on each side.

300 loads during each of the two 10-hour shifts per day.

Push-loaded by a D9, the D9-No. 491 tractor-scraper combination picks up about 28 loose yards in 1.17 minutes as it goes down the 100-foot ramp. A complete cycle takes about 4.25 minutes. The units load down the 12 per cent slope, turn to climb back up the slope to ground level, then dump on the 12 per cent face of the dike and return to the cut. Hauls average about 500 feet.

Weather, labor conditions

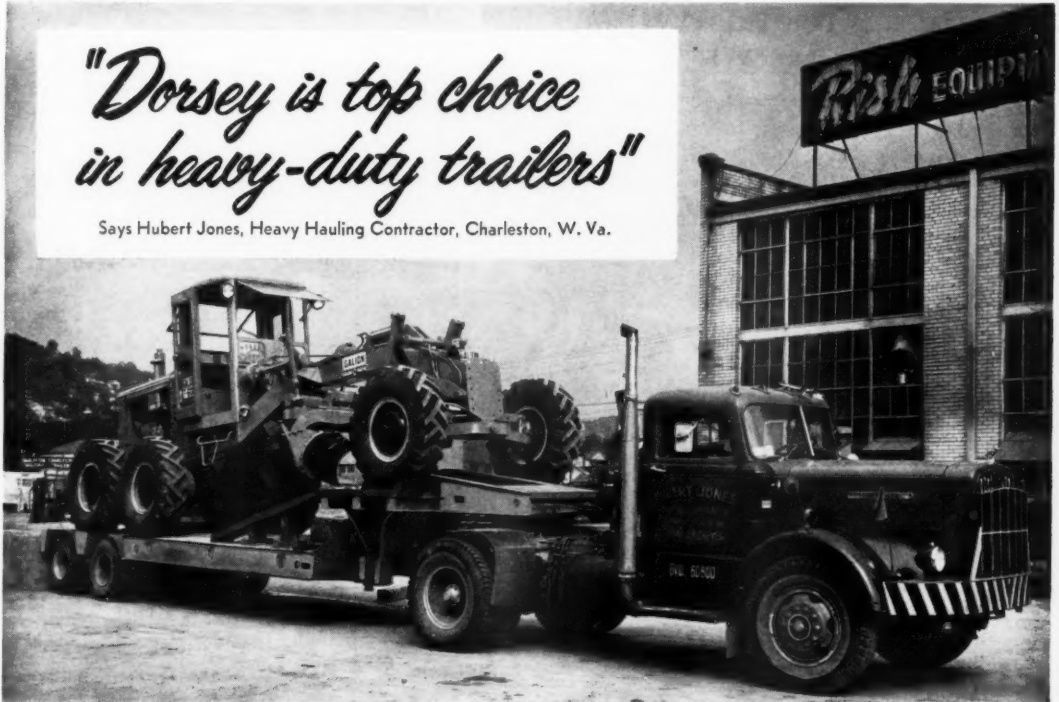
Right now, Berger-Holzman is working in a hot and dry climate, where daytime temperatures reach 120 degrees and the nights cool to 95 or 100 degrees. But in the summer months of July through September, the firm was working during the wet season.

The labor problem faced by the firm was similar to that faced by contractors on other projects in relatively undeveloped areas. Few trained operators were available in the Sudan when Berger-Holzman moved in, and few of the Sudanese available had

(Continued on next page)

"Dorsey is top choice in heavy-duty trailers"

Says Hubert Jones, Heavy Hauling Contractor, Charleston, W. Va.



In the contract hauling business, Mr. Jones puts this Dorsey MTS (30-ton capacity) through its paces under all kinds of loads, month in and month out. The result is an outstanding record of ruggedness under capacity loads, with very low maintenance expense. Mr. Jones also reports his drivers like the way the MTS handles. Model MTS comes in capacities of 15 to 35 tons.

For every tough job, there's a tougher Dorsey

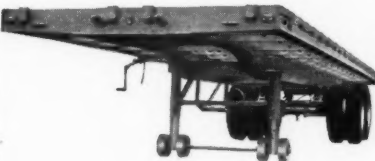
Check the "Specs"!

Before you buy any heavy-duty trailer, we suggest careful examination of the specifications. You will note that standard items on all Dorsey models include all lights, brakes and other equipment needed for highway operation, and that tires are full-sized for capacity loads.



MODEL HTS

20-ton capacity—Weights only 8,750 lbs. (also available in 15, 25, 30 and 35-ton capacities). Although as much as a ton lighter than other trailers of comparable capacity, high-tensile steel main channels and close-spaced all-welded cross members give the HTS superior strength and ruggedness. Flat gooseneck provides support for blades and other loads.



THE GIANT PLATFORM

52,000-lb. capacity—Weight: 8,280 lbs. The Giant, with its 18-inch deep main frame, has earned its reputation as America's No. 1 platform. Although as much as 2,000 lbs. lighter than other platforms, it has even greater strength.



TANDEM TILT-TO-LOAD

25,000-lb. and 30,000-lb. capacities—Weights: 6,975 lbs. and 7,150 lbs. Speed and efficiency as well as economy are combined in this versatile tilt model. It's so light a dump truck pulls it easily. Two-way hydraulic control is so precisely balanced the weight of a man will tilt it up or down. Single axle models also available.



For the complete facts on any heavy-duty trailer see your Dorsey Distributor or wire collect—

DORSEY TRAILERS — ELBA, ALABAMA

For more facts, use Request Card at page 18 and circle No. 330

YES! YOU CAN BUY DIRECT SEND US YOUR ORDERS FOR NEW ROTARY SWEEPER BROOM CORES

WE MANUFACTURE ALL SIZES

• Detroit • Littleford
• Harvester • Little Giant
• Fordson • (3 types)
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• Hiner • Rosco
• And many others • Spearswell

Also Cores Made to Your Specification



SUGGESTION—To faraway users. Order cores only without any fibres but ready to fill.

Also furnished filled with Palmyra-Hickory or Brass Fibres or even Spring Steel Wires.

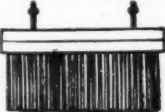
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Road Builders — it's sensational! BIG PECKERWOOD BIG C-O-N-T-I-N-U-O-U-S

Drag Broom Levelers with Spring Steel Wires or Brass Fibres six inches wide and lengths to 12 feet, and now three inches wide. No frame required.



In stock **ONLY \$350 FOOT** Length 4', 6', 8' or 12'. Wt. approx 5 1/2 lb. (foot)



THE LITTLE PECKERWOOD 3" wide, 15" long, with two bolts, fits your present frame. **ONLY \$250 EACH**

KENNEDY'S VAN BRUSH MFG. CO., INC. Since 1928 Dept. A, 327 So. West Blvd., Kansas City, Mo.

For more facts, circle No. 329

NOVEMBER, 1957

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(Continued from preceding page)

any technical knowledge. But operators for the first four groups of earthmoving equipment were trained by Ivan Wright, Caterpillar Overseas C. A. field engineer, so that the job could get started.

The project is expected to be completed by the summer of 1959. Under contracts yet to be let, the Roseri Barrage will be constructed across the Blue Nile near Sennar to dam up waters for the canal.

When the canal is completed, about 300,000 acres of now unused ground will be opened to settlers by the Gezira board. The board will supply each settler with a home, 20 acres of land, heavy equipment to till the soil, and cotton and berseem seed. The

settlers will cultivate the crops and harvest the plants, and the board will gin and sell the cotton.

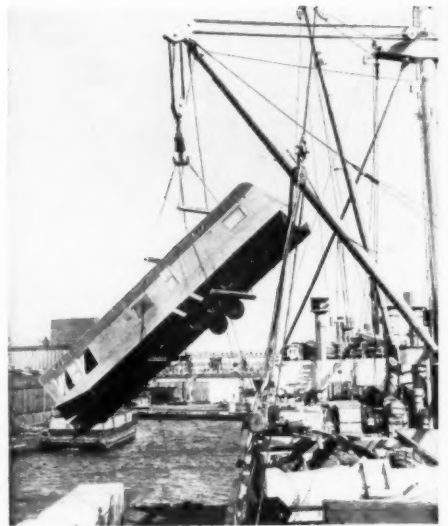
Each settler will be paid an annual base rate for working the land, plus a percentage of the profits from the sale of the crops produced on his land. About 40 per cent of the final sale price will be retained by the Gezira board to carry on redevelopment work and repay Great Britain for the original loan for the project.

THE END

Trailers as vital as tractors for Liberian project

Step one of a new highway project in Liberia was the shipping of nearly \$2 million worth of construc-

Starting on the first lap of its journey to Liberia is this Nashua trailer, one of fourteen that will temporarily house families of top personnel of Raymond Concrete Pile Co., New York, N. Y., on a 144-mile highway job in Liberia.



YOU'LL KNOW WHAT'S THERE ... BEFORE YOU KNOW IT ...



If you want to know what you're going to run into below the surface ... and just what equipment you will need to do the work properly and save you money ... your call for exploratory drilling should be aimed at SPRAGUE & HENWOOD INC. They have a wealth of experience and modern equipment ready to serve you. Well-trained personnel, adequate supervision and the latest in machinery, all tend to assure you the results you are looking for.

Don't just build without foundation investigation ... find out what's down there, first ... and let SPRAGUE & HENWOOD find it out for you ... You'll know what's there, before you know it.

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tion machinery from the U. S. for the project. As important as bulldozers, scrapers, and trucks on the job in the desolate area were fourteen Nashua house trailers to serve as temporary homes for top personnel and their families.

Under the contract, awarded by the Republic of Liberia, Raymond Concrete Pile Co., New York, N. Y., will build a 144-mile highway and all necessary bridges and other structures. The road, extending from the St. Paul River to Kailahun, will connect with a highway that runs from Monrovia, the port capital of Liberia, to a point 160 miles up the St. Paul River. The new road will thus open up the rich mineral deposits and agricultural resources of the Western Province, by providing a transportation link with the coast.

Book index on earthquake resistant design

A selected bibliography on "Earthquake Resistant Design" has been compiled by the American Institute of Steel Construction, Inc., and is available to all engineers and architects.

The bibliography lists publications on seismology, the magnitude and intensity of earthquakes, and engineering applications. Building codes, insurance codes, and reference sources are also mentioned.

The bibliography may be obtained by writing the Institute at 101 Park Ave., New York 17, N. Y.

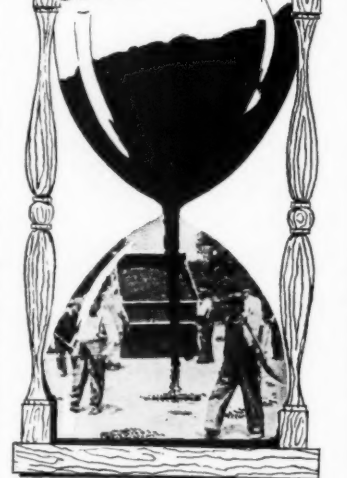
Ariz. highway department appoints J. R. Van Horn

The new assistant state engineer for the Arizona State Highway Commission is J. R. Van Horn, who will be in over-all charge of the construction and maintenance of five districts, the equipment division, landscape section, field reports, and highway use permits.

Van Horn will also serve as liaison between other sections and, on a statewide basis, will promote uniform maintenance and construction practices, develop roadside parks, and secure the maximum usage from all motor vehicle, roadbuilding, and maintenance equipment.

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all the time ... with

KOTAL
STOCKPILE MIX



KOTAL STOCKPILE MIX makes winter patching a cinch. And because Kotal can be stockpiled for immediate use, cracks and holes caused by freezing temperatures and snow "kickouts" can be held to minimum repair costs — caught and patched before they enlarge and cause heavy damage.

KOTAL STOCKPILE MIX IS EASY TO STOCK. It is formulated to "stand ready" even in freezing temperatures, making it possible to stockpile and keep in readiness for any repair job regardless of size.

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KOTAL STOCKPILE MIX IS TOUGHER. Patches made with Kotal Stockpile Mix eliminate repatching. One Kotal Patch does the job because Kotal is more durable — won't kickout — it's permanent.

• Write for detailed information about Kotal's various stockpile mixes.

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CONTRACTORS AND ENGINEERS

Rubber-tire ripper-dozer speeds street repairs

Equipment mobility comes in for a lot of attention from the Los Angeles Department of Public Works, which has to maintain 4,800 miles of streets in the 450-square-mile area.

So important is this quality in equipment, that the department had special equipment built to suit their needs when the time came to rebuild a number of boulevards throughout the city. What they were after was a heavy-duty tractor with bulldozer and a big ripper to tear up old surfacing—all in a single unit that could move from job to job through heavy traffic under its own power.

The department got what it wanted, too. The heart of the rig is a Le-Tourneau - Westinghouse Model C Tournatractor. LeT-WesCo offered no integral mounted ripper for the unit, but department officials got the Crook Co., LeTourneau-Westinghouse distributor in Los Angeles, to manufacture the ripper and install it on the Tournatractor.

Ellicott acquires B-E's dredge business

The floating dredge business of Bucyrus-Erie Co., South Milwaukee, Wis., has been acquired by Ellicott Machine Corp., Baltimore, Md. The acquisition includes all manufacturing rights, drawings, engineering data, and patterns.

Ellicott has specialized in the design and manufacture of dredges since it was established in 1885. With the acquisition, Ellicott is prepared to supply repair and replacement parts for all dredges built by Bucyrus. These parts will be in accordance with the original designs and specifications.

Bucyrus-Erie will concentrate on the manufacture of its other lines of products, including shovels, cranes, draglines, and drilling equipment.

Clark Equipment offers film on material handling

"Moving Mountains", a 27-minute, 16-mm sound, color film is now available from the Community & Industrial Relations Department, Clark Equipment Co., Buchanan, Mich.

The film dramatizes the role mobile material-handling equipment has played through the years. It tells the story of man's hard physical labors through the centuries up to the present, when the development of mobile machines to handle products and materials more efficiently has made possible a shorter day.

The film is available without charge.

Jervis B. Webb Co. names

C. P. McCormick has been made district manager of the Baltimore, Md., territory of the Jervis B. Webb Co., Detroit, Mich. A mechanical engineer, McCormick has had experience in machine design, methods engineering, and sales engineering. He started with Webb in 1953.

Using a specially built integral ripper, this Tournatractor rips up old blacktop in preparation for reconstruction of part of Centinela Blvd., Los Angeles. The highly mobile rig has proved a valuable addition in helping maintain Los Angeles' 4,800 miles of streets.



NEW Allis-Chalmers TS-160

7 yd struck
9.5 yd heaped
155 horsepower
5 speeds to 25.4 mph
12-ton payload



Measure these advantages for a wide range of construction jobs . . .



19,304 LB RIMPULL

22 hp per struck yard—Extra lugging ability for tough pulls, fast loading. Teams up with big equipment or works alone, handles a wide range of utility jobs, travels at speeds up to 25.4 mph.



FULL 90° STEERING

Turns non-stop in less than 25 ft with 90-degree hydraulic steering . . . easy maneuverability in narrow cuts, faster cycles without reversing in tight turn-arounds.



Moves quickly from job to job . . . when required, transport wheels are available to meet legal load limits for highway travel.

Ask your nearby Allis-Chalmers construction machinery dealer for a demonstration now!

ALLIS-CHALMERS, CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WIS.

ALLIS-CHALMERS

Engineering in Action

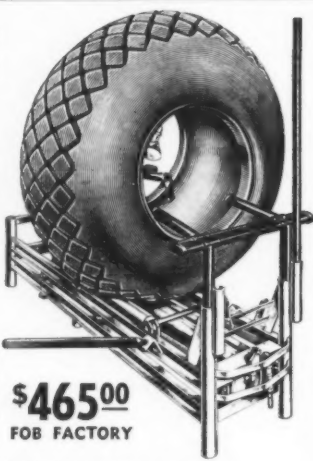
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SPEED UP INSPECTION & REPAIR on the BIG TIRES UP THRU 24.00-32" 30 PLY

BRANICK AIR-OPERATED MODEL G

SPREADS WIDE OPEN FOR FAST-EASY
Inspection . . . Skiving . . . Cementing
Building . . . Inserting Tubes & Flaps
Fitting & Packing Air Bags . . .

The Branick air-operated MODEL G Tire Spreader is BUILT LOW FOR CONVENIENCE . . . rolling tires onto spreader is easy. HANDLES TIRES from 13.50 thru 24.00 x 32" 30 ply. Capable of spreading the heaviest size 24.00 casings nearly 36" from bead to bead. . . Gives perfect visibility with the aid of the adjustable SEALED BEAM LIGHT. The three-way AIR VALVE gives instant control over 3 TONS of SPREADING POWER.



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Advanced Forward Control Design does it again! This time it puts a big 9-foot pickup box on a 103 1/2-inch wheelbase. With the engine behind the driver, more space is available to carry bulky payloads of up to 3500-pounds almost anywhere, in good weather or bad.

New Forward Control 'Jeep' FC-170 Truck saves time and manpower for contractors!



"Go-anywhere" 'Jeep' Traction. The all-new 'Jeep' FC-170 Truck, with the extra traction of its 4-wheel drive and wide 63-inch tread, takes the load almost anywhere around the construction site with ground-gripping stability. It shifts easily into conventional 2-wheel drive for economical highway performance.

Only the new and bigger 7,000-pound GVW Forward Control 'Jeep' FC-170 Truck spreads its cost over so many "impossible" construction jobs. Its advanced features save time and money, help you get a bigger day's work done 365-days a year!

This completely new, more powerful 'Jeep' FC-170 Truck is the only 4-wheel-drive truck with so much cargo space per inch of wheelbase. It has unequalled "big-load" maneuverability—takes men, tools and equipment where ordinary trucks can't go. And that's not all! Its functionally designed chassis provides 8-inch ground clearance to help prevent "hang-up" in the rough going on any construction project. And the pickup bed is only 27-inches from the ground for back-saving ease of loading!

The new 'Jeep' FC-170 Truck is powered by the high-torque Hurricane 6-226 engine, performance-proved the world over. Its spacious Safety-View cab puts you in a Forward Control position for greater command of any driving situation, on or off the road. With power take-off, the FC-170 operates a wide range of special equipment. See your 'Jeep' dealer for a demonstration today!

Other 4-Wheel-Drive
'Jeep' vehicles
to do your jobs!



The Universal 'Jeep'
... does hundreds of jobs!



The 'Jeep' Utility Wagon
... dual purpose vehicle
for business and family!

'Jeep' Forward Control
4-Wheel-Drive
FC-170

WILLYS... world's largest manufacturers of 4-Wheel-Drive vehicles
WILLYS MOTORS, INC., TOLEDO 1, OHIO

For more facts, use Request Card at page 18 and circle No. 335

distributor doings

Yale & Towne dealers named for Northwest and South

Yale & Towne Mfg. Co., Contractors Machinery Division, Batavia, N. Y., has appointed two distributors to handle the Trojan line of tractor shovels in the Pacific Northwest. Inland Diesel & Machinery Co., 3511 E. Trent Ave., Spokane, Wash., will cover the eastern half of Washington, northeastern Idaho, and northwestern Montana.

Clyde Equipment Co., 1631 N. W. Thurman St., Portland, Oreg., and 3410 First Ave. S., Seattle, Wash., will serve the western half of Washington and the entire state of Oregon.

Aldridge-Harbour Equipment Co., Inc., Highway 80 West, Jackson, Miss., has been made a distributor for the Trojan line of tractor shovels for the entire state.

Kwik-Mix names two dealers

The Kwik-Mix Co., Division of Koehring Co., Port Washington, Wis., has appointed two dealers. Carbeau Scaffolding, Inc., 94 Beaconsfield Road, Brookline, Mass., will handle the entire line of Moto-Bug power material-handling units in Maine, New Hampshire, Vermont, Rhode Island, and all of the state of Massachusetts except for Berkshire, Franklin, Hampshire, and Hampden counties.

Construction Equipment Sales & Service, 125 Boston Post Road, Orange, Conn., will carry all Kwik-Mix products. The dealer's territory will be Fairfield and New Haven counties in the state.

Dealerships to handle Ruhr grapples

The newest dealer for Ruhr Industries, Philadelphia, Pa., sole agents for Ruhr grapples in the Western Hemisphere, is Beckwith Machinery Co., of Pittsburgh. The firm will distribute the Ruhr grapples from their main office and four branch offices.

Recent distributor appointments for Ruhr Industries include Contractors Sales Co., Inc., Karner Road, Albany, N. Y.; North Jersey Equipment Co., 450 U. S. Highway No. 1, Newark, N. J.; Clark-Wilcox Co., 118-124 Western Ave., Boston, Mass., and Flack Equipment Co., 1240 McCook Ave., Dayton, Ohio.

Bil-Jax names dealer

Kelco Sales Associates, Indianola, Miss., has been appointed a dealer for Bil-Jax, Inc., Archbold, Ohio. Kelco, which will cover the entire state of Mississippi, will handle the complete Bil-Jax line of tubular steel scaffolding, maintenance trestles, swing stages, shoring equipment, and related items.

American Road appoints

The American Road Equipment Co., Omaha, Nebr., manufacturers of the Econmobile have made a major change in its dealer organization. Advance Equipment Corp., West 41

CONTRACTORS AND ENGINEERS

Ridgewood Ave., Paramus, N. J., and Johnson & Dealaman, 225 South St., Newark, N. J., have been appointed exclusive dealers of Econmobile equipment. This appointment eliminates any previous dealer connections that American Road Equipment has had.

Clark appoints dealers

Hawkeye Machinery Co., 1225 Walnut St., Des Moines, Iowa, has been appointed to sell and service Michigan tractor shovels, tractor-dozers, and excavator cranes by the Construction Machinery Division, Clark Equipment Co., Benton Harbor, Mich. The dealer will handle tractor shovels in the entire state, and carry excavator cranes in all Iowa counties east of and including Mitchell, Floyd, Butler, Grundy, Tama, Poweshiek, Mahaska, Wapello, and Davis.

Two Nebraska outlets are now handling the Clark line of shovels, dozers, and cranes. Fuchs-Clayton Machinery Co., 901 South 40th St., Omaha, is covering nine Nebraska counties and 20 counties in Iowa.

The Island Supply Co., 1221 W. Oklahoma Ave., Grand Island, is handling sales and service in 15 Nebraska counties for the Construction Machinery Division.

Two new distributors for Prime-Mover Co.

The Prime-Mover Co., Muscatine, Iowa, has appointed two distributors. Ransome Corp., 2729 Hunting Park Ave., Philadelphia, Pa., is the exclusive distributor for Delaware, southeastern Pennsylvania, and the southern half of New Jersey. The Ransome Corp. also has offices and service facilities at Route 40, Bear, Del.

Ensminger & Co., South Franklin and Wood Streets, Wilkes-Barre, Pa., will cover the eastern quarter of the state.

State Equipment appoints

Gordon D. Little has joined State Equipment Co., Kingston, Pa., as the firm's representative in Northumberland, Montour, southern Columbia, and western Schuylkill counties.

State Equipment distributes international industrial power equipment in Pennsylvania, New York, and Vermont.

Snap-Trac names dealer

Snap-Trac, Inc., Middlefield, Ohio, has appointed R. H. Fox, 14730 Vanowen St., Van Nuys, Calif., a distributor. Fox will handle the line of Snap-Tracs, patented steel traction units installed over tires on drive wheels of trucks and other heavy construction machinery.

Rolatape appoints dealer

Adlam Tool & Supply Co., Ltd., Montreal, Canada, has been appointed a dealer for Rolatape, Inc., Santa Monica, Calif. Adlam Tool will be Rolatape's direct factory representative for eastern Canada.

Davey Compressor names two new distributors

Two new distributors have been appointed by the Davey Compressor Co., Kent, Ohio. Blackwell Trucking Co., Adamsville, Ala., will handle the line of Davey rotary drilling machines and accessories in that state. Carrying the line of Davey Auto-Air truck-mounted compressors in the state of Colorado is the Truck Equipment Co., 3963 Walnut St., Denver, Colo.

Blaw-Knox names dealer

MacDonald Equipment Co., 5300 Colorado Blvd., Denver, Colo., has been appointed a bituminous equipment distributor for the Construction

Equipment Division, Blaw-Knox Co., Mattoon, Ill. MacDonald Equipment will cover the entire state of Colorado.

Highway Trailer appoints

Utilities Equipment Co., Inc., 821 S. Barksdale, Memphis, Tenn., has been appointed a distributor for the Highway Trailer Co., Edgerton, Wis. Utilities Equipment will cover Tennessee, Mississippi, Alabama, and parts of Arkansas.

Warner & Swasey appoints

Two dealers have been appointed by the Warner & Swasey Co., Cleveland, Ohio. D. D. Kennedy, Inc., Bellwood, Ill., will cover that state north of and including the counties of

Adams, Brown, Morgan, Sangamon, Macon, Piatt, Champaign, and Vermillion, plus Lake and Porter counties in Indiana.

H. B. Owsley & Son, Inc., Charlotte, N. C., will serve that state.

Bulletin covers crane uses in industrial plants

"Power Crane Applications in Industrial Plants", Bulletin No. 5, is available from the Power Crane & Shovel Association, 75 West St., New York 6, N. Y. The bulletin contains job photos of cranes working with loose piled material; bulk materials; bundled, packaged, and stacked material; plant maintenance; and plant construction. Priced at 50 cents, copies are available from the association.

A Better

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For Every Purpose



- ALL SIZES
- ALL TYPES
- ALL CAPACITIES



Designed to meet your every requirement



McKISSICK builds a
"Better Block for Every Purpose"

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McKISSICK PRODUCTS CORPORATION

Box 2496 Tulsa, Oklahoma

For more facts, use Request Card at page 18 and circle No. 336

manufacturer memos

R. M. Ronald to manage Hyster Co. division

Ray M. Ronald has been appointed manager of the Tractor Equipment Division, Hyster Co., Peoria, Ill. In his new position, Ronald will be responsible for all activities connected with the division and the Peoria



New manager of Hyster Co.'s Tractor Equipment Division is Ray M. Ronald.

plant. Prior to his appointment, he was located in Portland, Oreg., as sales manager of the firm's Western Division.

William M. Campbell, formerly manager of the Peoria plant, is assuming new duties in Portland, Oreg., as assistant secretary and treasurer.

I-H appoints Parthemer department manager

Harold W. Parthemer has been promoted to manager of the Industrial Engineering and Construction Department of the International Harvester Co., Chicago, Ill. He succeeds Otto A. Krueger, who retired after 41 years of service.

A member of the firm since 1919, Parthemer specialized in layout and development of the company's manufacturing facilities. Prior to his new appointment, he was assistant manager of the department he now heads.



President of Byers Machine, Inc., is Alan W. Smythe.

Byers Machine elects Smythe president

Alan W. Smythe, the vice president and general manager of the Thew Shovel Co., Lorain, Ohio, has been elected president of Byers Machine, Inc., Ravenna, Ohio. He will continue to serve in his present capacities at Thew.

At Byers, Smythe replaces A. C. Lundgren, who retired. Byers Machine, Inc., a wholly owned subsidiary of Thew, manufactures some of the smaller models of the Lorain line of shovel cranes.

The Byers board also elected W. J. Allaback as president and director of the firm.

Yale & Towne appoints sales representatives

Four district sales representatives have been appointed by the Contractors Machinery Division, Yale & Towne Mfg. Co., Batavia, N. Y. John Sweatt will serve western New York State and New England, and New Brunswick, Quebec, and Ontario, Canada, from headquarters in Batavia.

Wesley J. Zorn is the new sales representative for Illinois, Minnesota, Missouri, Kansas, Iowa, Wisconsin, North and South Dakota, Michigan, Indiana, and Ohio. He will make his headquarters in Glen Ellyn, Ill.

Edward D. Gorton, from headquarters in San Leandro, Calif., will cover Washington, Oregon, Montana, Wyoming, Idaho, and Alaska, and British Columbia and Alberta, Canada.

Harry Hennessey has been appointed a district sales representative, operating from headquarters in Decatur, Ga. He will handle the Trojan line of tractor shovels in Georgia, North and South Carolina, Kentucky, Alabama, Mississippi, and Tennessee.



Nelson Thompson, executive vice president of Homelite, Division of Tectron, Inc.

Homelite names Thompson executive vice president

Nelson Thompson has been appointed to the newly created post of executive vice president of Homelite, Division of Tectron, Inc., Port Chester, N. Y. He joined the company in 1929 as a salesman, and later organized the Detroit, Mich., sales area. Thompson has been vice president of sales since 1941.

For more facts, use coupon or circle No. 337

Rock-speeding Payhauler® features hit schedule-beating pace.....



The three-unit "65" Payhauler fleet of Greer Brothers and Young, highball 2,000 cu yd of rock 1,200 feet daily. Rock-moving climbed 'way ahead of schedule, on this U. S. 27 relocation job near Lincoln, Kentucky!

Both Payhauler sizes—the 18-ton "65", and 24-ton "95"—have built-in, schedule-beating performance!

Exclusive high reverse and "zip-around" power steering gives a Payhauler regular "pick-up truck" spotting ease. The "big-target" Payhauler body speeds the shovel's dip-and-dump cycle.

Load-matched and road-matched turbo-charged

Find out for yourself all about all the big-money-making Payhauler features. Send for your free copy of this new, fully-illustrated Payhauler catalog!

diesel power gives these heavy-duty, off-highway haulers super-fast get-aways. Next-to-automatic Payhauler control gives safe, capacity-adding speed—even over rough terrain! The "65" can roll at 36.4 mph; the "95" at 38 mph!

And the double-acting hydraulic hoist, under full controlled power both up and down, contributes cycle-speeding 10-to-12-second Payhauler dumping!...Extra speed on every job-phase adds up to extra profit-tons hauled!

See how a Payhauler on your job will give you a decisive, profit-margin of difference! See your International Construction Equipment Distributor for a demonstration!



International Harvester Co.
180 N. Michigan, Chicago 1, Ill.

Gentlemen:
☐ I am a contractor. ☐ Am interested in becoming a contractor. ☐ Am an equipment operator (please check square that applies.) Send me Payhauler Catalog (CR-603-G)

Name _____
Street Address _____
City _____ State _____



INTERNATIONAL®
CONSTRUCTION
EQUIPMENT

International Harvester Co., 180 N. Michigan Avenue, Chicago 1, Illinois

A COMPLETE POWER PACKAGE. Crawler and Wheel Tractors... Self-Propelled Scrapers... Crawler and Rubber-Tired Loaders... Off-Highway Haulers... Diesel and Carbureted Engines... Motor Trucks... Farm Tractors and Equipment.



Bucyrus-Erie Co.'s assistant general sales manager, Edwin T. Goree.

Assistant general sales manager named by B-E

Edwin T. Goree has been promoted to assistant general sales manager of the Bucyrus-Erie Co., South Milwaukee, Wis. He will assist L. E. MacDonald, general sales manager. Goree joined Bucyrus-Erie in 1947 in the export sales department and traveled in Mexico, and Central and South America.

In 1951 he was named the firm's field representative for Mexico and remained there for four years, when he was made assistant sales manager of excavator distributors, in South Milwaukee.



Richard C. Locke, supervisor of the General Construction Section, Sales Development Division, Caterpillar Tractor Co.

Caterpillar names Locke supervisor of section

Richard C. Locke has been made supervisor of the General Construction Section, Sales Development Division, Caterpillar Tractor Co., Peoria, Ill. In his new job, Locke will be responsible for a program of market development for Caterpillar products in the general construction industry.

A member of the company since 1952, Locke was a product specialist for the past year.

Leschen Wire Rope news

W. J. Hannon has been appointed district sales manager for the Chicago, Ill., branch of the Leschen Wire Rope Division, H. K. Porter Co., Inc., St. Louis, Mo. Hannon's district includes Michigan, Wisconsin, Minnesota, North Dakota, eastern Iowa, and northern Illinois and Indiana.

Until his promotion, Hannon was district representative for the Leschen company in the St. Louis, Mo., territory.

B-L-H appoints two

Baldwin - Lima - Hamilton Corp., Construction Equipment Division, Lima, Ohio, has appointed Edward R. Gee sales representative for Lima

shovels, cranes, and draglines in the Eastern district. From headquarters in New York City, Gee will work with Lima distributors—Metalweld, Inc., Philadelphia, Pa., and John C. Louis Co., Baltimore, Md.

Glenn R. Aggas has been assigned as sales representative in Pittsburgh and Harrisburg, Pa., and Clarksburg and Charleston, W. Va. John W. Rothe has been temporarily transferred to the twin-city district office in Minneapolis, Minn., following the death of district manager A. F. Meinecke.

Austin-Western manager of domestic field sales

Serving as domestic field sales manager for Austin-Western, Construc-

A. Merrill Smith, domestic field sales manager for Austin - Western Co., Aurora, Ill.



tion Equipment Division, Baldwin-Lima-Hamilton Corp., Aurora, Ill., is A. Merrill Smith, a seven-year veteran of the firm's sales staff.

Before starting work for Austin-Western, Smith worked as a distributor's salesman for a number of years. He first served the firm as district manager of the Texas-Southeast territory in 1949. In 1956, he was named assistant sales manager.



One of the Heston fleet—an International L-190 with RD-406 engine, equipped with a 5-speed Fuller 5-A-62 Transmission.

FULLER Transmissions help keep mixers rolling on Heston's roughest jobs

"We are well satisfied with our 5-speed Fuller Transmissions. They see some rough service out on the job sites, and they're plenty rugged. De-

pendability like that is important to us, because concrete has to be delivered strictly on schedule," says Earl Geiss, Equipment Superintendent of Heston Concrete Corp., Indianapolis.

All 25 Heston trucks are equipped with the original 5-speed 5-A-62 Fuller Transmissions working behind RD-406 engines. Fuller Transmissions "put the power through" to

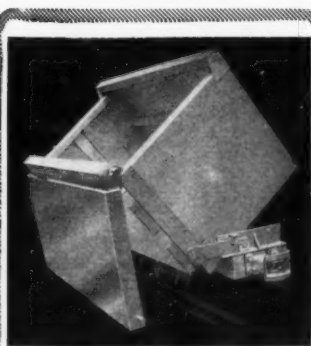
deliver ready-mix concrete to the pour site even in the toughest sticky mud or sand off-road areas.

This satisfying performance can be yours, when you equip your trucks with Fuller Transmissions. From over 110 models available for rubber-tired equipment, you will find a Fuller Transmission designed to do *your* job better at less cost.



FULLER MANUFACTURING COMPANY, Transmission Division, Kalamazoo, Mich.
Unit Drop Forge Division, Milwaukee 1, Wisconsin • Shuler Axle Company, Louisville, Kentucky (Subsidiary) • Sales & Service, All Products, Western District Branch, Oakland 6, California and Southwest District Office, Tulsa 3, Oklahoma.

For more facts, use Request Card at page 18 and circle No. 339



MAYO Tunnel Cars

... feature practical designs and rugged construction. All cars can be equipped with Mayo's safe, automatic couplers.

- Side Dump Car (shown) has 2½ cu. yd. capacity. 24" gage.
- Rocker Dump Car Ideal for sticky muck or wet concrete. 1 cu. yd. capacity. 24" gage.
- Tunnel Car. Box body is removable and may be hoisted to surface to be dumped into truck. ½ to 2 cu. yd. capacity. 18" or 24" gage.

FREE Bulletin No. 18 shows car details; No. 21 illustrates Automatic Coupler.



MAYO
TUNNEL AND MINE
EQUIPMENT
LANCASTER, PENNA.

For more facts, circle No. 338

NOVEMBER, 1957

Precasting and prestressing take a big step forward on developmental center job

Scheduled for the full start of operations this month is the Boeing Developmental Center at Seattle, Wash., which contains six buildings of precast, prestressed concrete—one of them reputed to be the largest prestressed structure in the world.

Three of the buildings on the 38-acre site house facilities for three staffs—experimental, structural test, and physical research. Here, personnel developing new aircraft will be working in close proximity to employees developing new manufacturing methods, and developmental work, as a result, is expected to go faster than ever before. The center and its

various staffs will serve a number of purposes—including manufacturing support for Boeing's technical laboratories, work on new aircraft, sub-assembly of components for airplanes or pilotless aircraft already in production.

The remaining three buildings at the \$23 million center will house a cafeteria, reception center, and plant services. These, like the three staff buildings—are of prestressed construction.

The main building in the center, 840x540 feet, has factory equipment, assembly space, a complete machine shop, finishing shop, template shop,

wood shop, and anodic tanks for treating metal. This structure has 792,000 square feet of 2-story construction. Below the building are tunnels carrying electric lines to furnish power for "quick heat" testing.

On this structure, framing is fully continuous and designed for earthquake loading. Precast and prestressed wall panels, 40 feet long, 17 feet high, and 5 inches thick, span 40 feet and are supported on the lower two corners only. Five trusses, each 540 feet long, are continuous over two spans of 300 and 240 feet each, providing a high bay area with column-free spaces.

Work on the new center was com-

pleted in 20 months—instead of an expected three years—largely because drawing board time was telescoped into the construction schedule. The big job of constructing the center was entrusted to The Austin Co., Cleveland, Ohio, which started early last year by pumping 180,000 cubic yards of fill to the site from the Duwamish River. After this, 8,000 foundation piles were driven for the structures. Then came the job of turning 180,000 cubic yards of concrete—enough to pave an 18-mile, four-lane highway—into 1,510 sections of wall panels and columns. Here are some of the tricks Austin used on the job . . .



1 Two cranes handle 40 foot prestressed girders as they are completed and set them in place. The floor of the main building is used as a casting bed.



2 A portable Sam Mulkey conveyor carries fresh concrete from a transit-mix truck and chutes it directly into a reusable steel form for a 40-foot roof purlin. The 60-foot girders are also poured this way.

VULCAN

...the PILE EXTRACTORS
you can depend on for

SPEED-

jobs get done faster, better.

ECONOMY-

efficient, balanced design,
sturdy construction assures
enduring economical
performance.

EASY OPERATION-

simple in design, it
is easy to operate—
pulls sheet steel, wood, con-
crete, H-beam and pipe piles with
the greatest of ease.



Manufacturers of Pile Driving Hammers
and Piling Extractors Since 1852

VULCAN IRON WORKS INC. 327 North Bell Avenue, Chicago, U.S.A.



For more facts, use Request Card at page 18 and circle No. 340

130

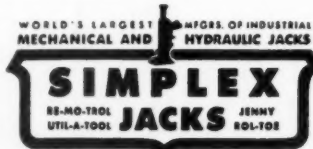
MALLEABLE IRON or DROP FORGED?

Rugged dependability suggests that you insist on the best—Simplex drop forged steel trench braces.

Ball and socket joints at each end for tight grip at any angle. Blunt lever nuts or 3-way nuts—nail holes in both screw and butt ends. Furnished with or without pipe.

Simplex drop forged steel trench and timber braces cost no more and better eliminate the danger of cave-ins and costly re-digging.

SEND FOR BULLETIN: U 56



TEMPLETON, KENLY & COMPANY
2511 Gardner Road
Broadview, Illinois

For more facts, use Request Card at page 18 and circle No. 341

CONTRACTORS AND ENGINEERS

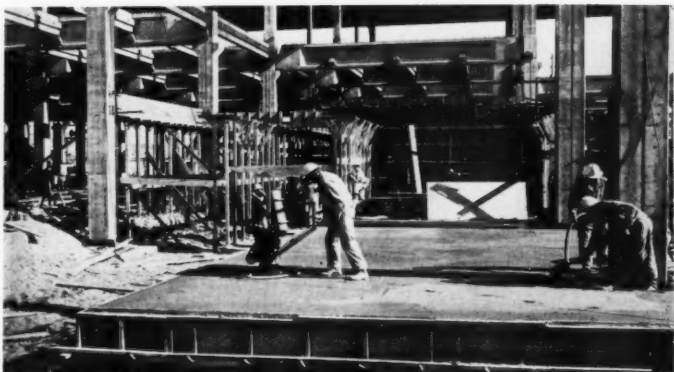
2339 V

NOVEM

- 3 Roof purlins are post-tensioned. In this process the portable hydraulic jack used is suspended from a portable 4-wheeled cage by a chain and hook arrangement running through a pulley.



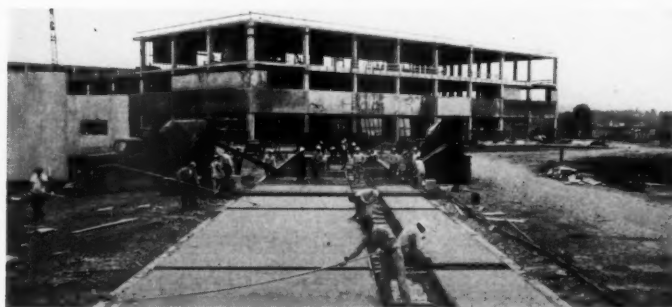
- 4 A 60-foot 16-ton roof girder straddles a special tractor-trailer unit that operates between the casting platform and the erection site. The rear unit has an independent steering control.



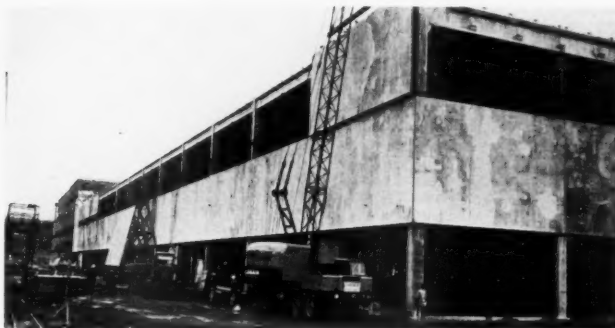
- 5 Just behind the crew finishing a special equipment platform for the main building, erection of floor beams and girders is under way. These are set on corbels cast in the slender, 50-foot, two-story columns.



- 6 Corbels on the column support one end of a girder and a roof purlin. Floor and roof slabs are integrated with the concrete frame of the main building. One end of another purlin is on a corbel in the 60-foot beam.



- 7 Hand-finishing of 5x14x32-inch wall panels is done as concrete is placed. The high-tensile 7/16-inch-diameter wire strands, threaded through forms on 7-inch centers, are stressed eight at a time.



- 8 A 20-ton wall panel is set on the two-story section of the main building by a Lorain Moto-Crane. Delivery of wall sections is made by a special 100-ton flat-bed trailer equipped with an A-frame.

I & E has redesigned its "D" type compressors for less bulk, lighter wheel load, and shorter overall length. The old fashioned bulky air receiver has been done away with, in its place we have a tubular receiver of greater than average volume with greater surface to volume ratio for cooling of the air.



D-601
215 cfm

Working weight 3725 lbs.
Completely air cooled Diesel drive. Non-burning
compressor-exhaust-valves. Electric self starter.

AIR COMPRESSORS, INC.

2339 W. BEAVER ST. P.O. BOX 2976 JACKSONVILLE, FLA.

For more facts, use Request Card at page 18 and circle No. 342

NOVEMBER, 1957

if you operate
diesel-powered equipment...

Tachographs help cut down "lugging"
...lengthen engine life... save fuel!

The RPM Tachograph is a recording tachometer which gives your operators a constant guide for proper engine operation, flashes a warning light when predetermined control speed is exceeded, and provides supervisors with an accurate charted record to check operator performance. In addition to engine speed in RPM, the Tachograph chart records time, total engine revolutions, and OFF periods. A small investment in an RPM Tachograph for every diesel engine you operate can pay big dividends by reducing costly "lugging." Tachographs are easy to mount and position on the instrument panel, are ruggedly built and tamper-proof. Bulletin SU-107 tells the whole story—mail the coupon today.

Wagner Electric Corporation

6364 PLYMOUTH AVENUE, ST. LOUIS 14, MO., U.S.A.

Please send me Bulletin SU-107.

Name and Position _____
Company _____
Address _____
City _____ State _____
We operate _____ Vehicles
(NUMBER)



For more facts, use coupon, or Request Card at page 18 and circle No. 343



Built on a modified Cat No. 12 grader, the Pavement Planing Co. heater-planer has a 126-cubic-foot furnace at the forward end. Cuttings winnowed by the V-type blade are picked up by an elevator and discharged to the Ford dump truck chained to the rig. The 40,000-pound unit is equipped with a creeper gear to maintain slow speeds for deep cutting.

Heater-planer gives new surface to old road

A heater-planer did an effective job of taking the bumps out of a busy highway through Little Rock, Ark., with a minimum of interference to heavy traffic.

In the first maintenance contract of this type to be let by the Arkansas State Highway Commission, Jim Jackson, Contractor, of Little Rock, planed a mile of congested 4-lane highway in five days, taking advantage of the compactness of the heater-planer and laying off work during peak traffic loads. The planer is made by the Pavement Planing Co., Salt Lake City, Utah. It manufactures the rig for use by franchised contractors such as Jackson, whose territory includes Arkansas, Texas, Louisiana, and Oklahoma.

The 1-mile job in Little Rock started at Markham St., downtown, crossed the Broadway bridge, and continued on East Broadway in North Little Rock to the junction with the Missouri-Pacific underpass. The 23,000 square yards of existing pavement contained both longitudinal and transverse corrugations, with maximum depressions of about 2 inches. But the surface of the as-



Turnpike Interchange

The Mahoning Valley Interchange of the Northeastern Extension of Pennsylvania Turnpike links the turnpike with U. S. Route 209. It is one of the major construction jobs along the four-lane superhighway which connects the port and industrial facilities of Philadelphia with the anthracite coal regions and Pocono Mountain resort sections of the North.

Bethlehem, which is well represented on all sections of the Pennsylvania Turnpike, supplied dowel units,

reinforcing steel, bar mats and other highway steels for the road bed. In addition, Bethlehem structural shapes were used in the construction of bridges and overpasses, and Bethlehem guard rail protects motorists and truckers along many miles of the highway.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation, Export Distributor Bethlehem Steel Export Corporation

BETHLEHEM STEEL



For more facts, use Request Card at page 18 and circle No. 344

DUDGEON HYDRAULIC JACKS

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RENTALS**

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**CAPACITY
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EST. 1850

For more facts, circle No. 345

CONTRACTORS AND ENGINEERS

**Compact unit takes bumps out of busy highway
through city; traffic continues using three
lanes as rig smooths fourth**

phalt pavement, which was relaid five years ago, was not badly oxidized.

In the planing operation, the machine made two separate passes, cutting the surface an average of $\frac{1}{4}$ inch on each pass. On the bumper sections, the planer cut off as much as an inch of the surface. Since the pavement was not badly oxidized, highway engineers decided it was not necessary to seal coat the planed surface. The final sealing of the surface was done by the heavy traffic on the road.

Handling traffic

One of the advantages of this operation was that it allowed three of the four lanes of the highway to remain open to traffic at all times. The compactness of the unit is made possible by an attached elevator that discharges the asphalt clippings into a towed dump truck. Traffic was directed to either side of the machine by two flagmen stationed ahead of and behind the unit. Because this section was heavily traveled by commuters, the contractor shut down during the morning and evening rush hours. Jackson worked a 9-hour day from 4:30 a.m. to 7:00 a.m. and from 9:00 a.m. to 3:30 p.m.

A four-man crew — operator, ground man, and two flagmen to work before and behind the rig — are used. The ground man chains and unchains the haul trucks, does necessary cleanup work, and keeps an eye out for manholes or other surface obstructions.

The operator has to regulate the heating of the pavement to correspond to the quality or hardness of the asphalt. This he does by raising or lowering the box-shaped heater, changing the forward speed, or regulating the oil supply to the burners. The operator also controls the depth and angle of cut, although the blade is not often changed once it has been positioned.

Clippings on eroded shoulders

The 250 tons of hot asphalt clippings scraped off the road were not wasted. Two Ford trucks, supplied by the highway department, hauled the material several miles to repair eroded shoulders.

Highway maintenance engineers are well satisfied with the finished surface of the job, and the contractor estimates the road should stay

For more facts, circle No. 346.

in good shape for another four or five years.

Personnel

Jim Jackson spent a considerable amount of time on the job, doubling as flagman and quite often explaining the operation of the machine to the curious public. Ken Kahler was the operator of the planer. The project was under the direct supervision of John Sanders, maintenance superintendent of Division 6. A. G. (Lanky) Rives is the state maintenance engineer.

THE END

**Richmond Screw acquired
by Shattuck Denn Mining**

Majority control of the Richmond Screw Anchor Co., Inc., Brooklyn, N. Y., has been acquired by the Shattuck Denn Mining Corp., New York City. Richmond Screw Anchor manufactures concrete form tying and anchoring devices; Shattuck Denn is a producer of nonferrous metals, and operates zinc, lead, gold, and silver mines at Humboldt, Ariz., and a uranium mine in Uravan, Colo.

No change in Richmond Screw Anchor personnel is planned.



Four of many Caterpillar-built machines on the Great Falls Paving Project: two DW15 (Series E)-No. 428 LOWBOWL Scrapers, a D8 Tractor and a No. 12 Motor Grader. The

blocks in this area of the project are 430 feet long, and the street width 35 feet. Excavation of heavy clay soil averaged 525 cubic yards a block here.

HIGH PRODUCERS IN NARROW STREETS

**New CAT* DW15 (Series E)-No. 428 LOWBOWL Scrapers
set fast pace on \$4,186,721 Great Falls Paving Project**

Four firms associated under the name of City Constructors were awarded the contract to handle the Great Falls Paving Project, Montana. The project involved the reconstruction of about 900 blocks. Among the new Caterpillar DW15 (Series E)-No. 428 LOWBOWL Scrapers on the job were these two units, owned by S. Birch Inc. & S. Birch & Sons Construction Co. Here you see them at work in heavy clay soil on a typical 35-foot-wide street.

The street was excavated to the depth of a foot for rebuilding. Loads were restricted to avoid damage to utilities and improved streets. Averaging 12 cubic yards a load, each unit made five trips an hour on a 3,000-yard round-trip haul through traffic.

This is just one of many jobs where the new DW15 (Series E) unit proved itself a high producer. In fact, in reports from other jobs, this point is clear: When the new DW15 is compared with competitive units of similar capacity, it leads the pack in performance. Many factors contribute to its superiority. For example, it has a high travel speed of 37.2 MPH with the stability of four wheels. Very maneuverable, it turns within a 35-foot diameter, and its stability permits short turns at high speeds. Its wide-section 26.5 x 25 tires provide maximum flotation. And the new No. 428 Scraper's LOWBOWL design means a faster loading rate clear to the end of the loading cycle.

The new DW15 (Series E) delivers 200 HP (maximum output capacity). The new No. 428 has a capacity of 13 cubic yards struck, 18 cubic yards heaped.

Your Caterpillar Dealer, who backs you with prompt service, will be glad to show you cost-of-operation figures on actual jobs. Better still, name the date—he'll demonstrate, right on your job!

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

**ONE GOAL: To concentrate
our capabilities, resources and
experience on the design,
manufacture, distribution and service
of job-tested heavy equipment.**

**THE LATEST, MOST COMPLETE INFORMATION
ON THE NEW HIGHWAY PROGRAM—FREE**

Here in one booklet is all the latest information on the new highway program. Find out how, where and when the money will be spent; standards for the new freeways; final routes of the Interstate System. Everything you need to know to share in the greatest construction job in history.

DEPT. C&E-11, Caterpillar Tractor Co.
Peoria, Ill.

Please send me immediately
_____ copies of "The Road Ahead."

Name _____

Company _____

Address _____

City _____ Zone _____ State _____

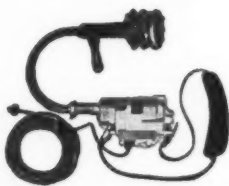




"BERG" CONCRETE SURFACERS

for: bridges, highways,
airport runways, dams,
culvert, floors, walls.

Model H-8 and H-10 (above). Gasoline powered unit especially designed for surfacing concrete highways, runways, streets, floors. Includes exclusive power take-off for attaching "BERG" flexible shaft surfacing equipment. Model A (right) is lightweight, electric powered unit that suspends from operator's shoulder. Equipped with interchangeable heads and attachments for surfacing bridges, buildings, dams, culvert, walls or similar surfaces. Wire or write for details.



CONCRETE SURFACING MACHINERY CO.
4665 Spring Grove Avenue Cincinnati 32, Ohio

For more facts, use Request Card at page 18 and circle No. 347

Add years of service to old
bridge structures with

STRUCTURAL-PLATE BRIDGE FLOORING



Bridges, overpasses, viaducts and similar type crossings with symptoms of old age such as worn, rattling, wood plank flooring can be rejuvenated at surprisingly low cost with USF Structural-Plate Bridge Flooring. It installs rapidly and efficiently, in least possible "out-of-service" time. It minimizes dead load, stiffens and strengthens structure, and provides uniform support for a smooth bituminous wearing surface. Available shop fabricated to your requirements or in standard lengths for emergency stocks.



Get full details including specifications and engineering data in this free 12-page bulletin.

UNITED STEEL FABRICATORS, INC.

WOOSTER, OHIO

Products: Hollow Metal Doors • Prefabricated Metal Buildings • Window Wells • Highway Guard Rail • Bridge Flooring • Steel Forms for Concrete Bridge Floors • Corrugated Metal Pipe • Sectional Plate Pipe and Pipe Arches

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management

Planning and production:

Progress reports

As work progresses in the office and the field, everyone in an administrative capacity must be kept fully informed on the status of the drawings, purchase and billing of materials, promised delivery dates, receipt of vital materials, and all other pertinent information necessary to complete the work on time.

Most of this information is available in the job data sheets, but this does not include facts as to erection status in the field, nor does it analyze the work order or contract as a whole. Complete weekly data on all aspects of the job progress can be reported by means of Job Checkups or Progress Reports. On simple jobs, the plotting of the job progress on the combined time schedule and progress report may be sufficient to keep management informed. However, such a form is not detailed enough to cover the requirements of complex construction.

Value of Progress Reports

If the construction firm is not making the drawings, the work will be simplified. With numerous jobs being done simultaneously, copies of these checkups, supplied to the project manager or superintendent, will keep him fully informed on all phases of the work.

It is a matter of judgment to employ an engineer to prepare the re-

ports, depending on whether the job is large and important enough. On a smaller project, this duty may be allocated to the field engineer, chief clerk, project manager, or superintendent.

If weekly conferences are held between the project manager and department heads, current issues of job checkups are a primary source of information leading to discussions on furthering progress of the work as a whole. Then, with a copy of the latest weekly cost report also available, the matter of unit and over-all costs can be discussed in connection with the job progress. For instance, if costs are running high and the work is ahead of schedule, time is available to make corrections.

Job Checkups

A Job Checkup is an analytical report on a construction work order prepared and issued periodically by the scheduling section of the planning department. It is designed to present briefly and clearly the general condition of the work order it reports on and to show the details of the job which are apt to slow it up or hinder progress. Checkups are issued to all department heads and they can see if their department is functioning properly on that particular work order.

The Job Checkup should not be-

NEW LIGHTWEIGHT SCOOP MOVES 1/2 YARD OF DIRT IN ONE BITE!



**DANUSER
TERRA-SCOOP**
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contractors!

Here's a new concept in lightweight earthmovers... a finishing tool which actually makes a prime mover of your tractor. The Danuser Terra-Scoop does everything the big earthmovers do, in miniature. Slices off high places, carries dirt to low places, dumps, scarifies... all hydraulically, without long ropes or levers... at a cost of only a few pennies per operation. Quickly

reversed by changing four bolts.

This is a rugged, alloy-steel machine which can pay for itself quickly. Does the whole job for small contractors. Frees expensive heavy machines for large operators. See the Danuser Terra-Scoop soon at your local tractor dealer.

DANUSER MACHINE CO.

535-46 East 3rd St. • Fulton, Mo.

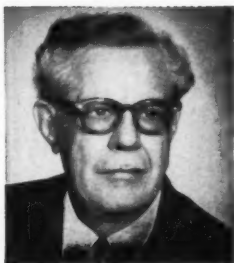
"Manufacturers of Quality Equipment Since 1910"

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WRITE TODAY
FOR FULL DETAILS!
Specify make and model
of your tractor

For more facts, use Request Card at page 18 and circle No. 349

CONTRACTORS AND ENGINEERS



by **GEORGE E. DEATHERAGE, P. E.**
construction consultant

This is the twenty-third of a series of articles on Construction Management by George E. Deatherage, P. E., construction consultant. The articles are based on an eight-volume "Manual of Advanced Construction Management" published by Geo. E. Deatherage & Son, P. O. Box 921, Lake Worth, Fla. The manual is used in a training course for superintendents and project managers, and is directed primarily at those contractor employees who have reached the foreman level or its equivalent, and who need practical help in order to take complete charge of construction projects themselves.

come merely a record of facts, but should remain a brief analysis or interpretation of facts, calling attention to those phases of a job that are not running properly; theoretically, a job that ran perfectly would require no checkups.

The Job Checkup is prepared by the checkup engineer who compiles and maintains the job data sheet and follows the work order from start to finish. It is prepared and issued once a week on a regular schedule; checkups are started as soon as possible after the work order has been issued, and are discontinued as soon as the job is in operation.

Generally there is an appreciable lapse of time between the effective operation date and the closing out date of a work order. During this period there may be small items of work, such as painting or insulation, which will not interfere with operation but will prevent closing out. In order to prevent such items from being missed and to follow the job completely to the end, such jobs are listed once each week on a "Dormant Work Order List" which contains the work order number, the title, and the reason preventing the job from being closed out. This results in jobs being closed out as soon as possible instead of being left open to collect unnecessary charges. In addition, jobs which are open, but on which work has not yet begun, are carried on this Dormant List, the result being to get work under way as early as possible.

Subdivisions of checkups

The checkup is divided into six standard subdivisions—design report, progress, drawings, bills of material, open requisitions, and purchase orders.

The checkup engineer is responsible for the status of the design report on the issue date of the checkup. This entry is complete if the report has been issued. If the report has not been issued, the checkup engineer contacts the engineering department and determines the present status and the date when the report will be completed and issued. In the first checkup after the report has been issued, the checkup engineer notes the date the report was received.

Under progress, the percentage complete is stated first. This percentage is obtained by comparing the money spent on the job to date and the amount estimated and verified, or

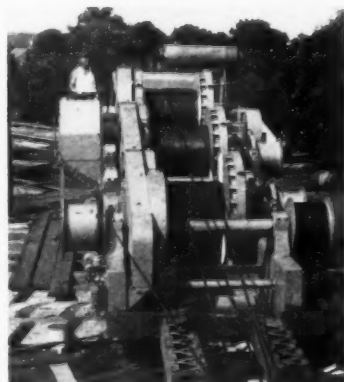
modified, by the checkup engineer's actual observation on the job in the field.

The per cent scheduled is then stated, determined by a study of the job time schedule and the working

estimate. Next is presented a brief description of field work done since the last checkup and a note of scheduled dates for that work. In case the work is a large item, the percentage of completion is estimated. This in-



Clyde Hoists, with 42,000 pound line pull, handle big steel in stride!



One of the Frame-12 Clyde hoists operating on the New England Turnpike. Full air controls for ease of operation, double brake bands for extra safety are but a part of the many advantages found in these better built hoists by Clyde.

During a forty-minute interval, beginning at 4:19 A.M. on two successive Sundays, two Frame-12 Clyde Hoists, handled picks of 160 tons and 250 tons on the New England Turnpike at Stamford. That was the only interval free of traffic at the railroad terminal the turnpike crosses. Girders, up to 220 feet in length, had to be placed on schedule . . . and they were with Clydes! Clydes perform jobs impossible with ordinary hoists.

An on-the-scene engineer reported there was plenty of power for simultaneous hoisting and slewing. Clyde controls permitted smooth and accurate positioning of the girders and the performance of both hoists was outstanding.

Clyde Hoists Are Available In A Complete Range of Sizes!

Whatever your hoist requirements may be, you can capitalize on Clyde's more than a half century of hoist engineering and manufacturing experience. Clyde hoists are available in a complete range of sizes from 3,000 pounds to 80,000 pounds line pull . . . hoists that give smooth, positive control with safety and dependability.



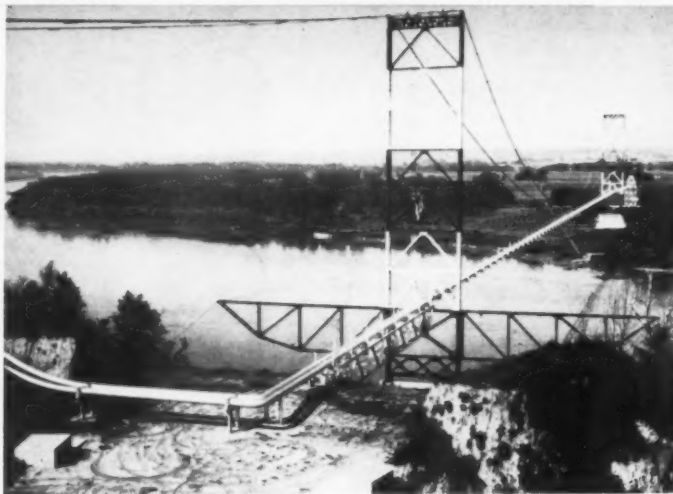
The best names in the construction field use Clyde . . . write for your bulletins and specifications on any type of Clyde equipment.

CLYDE IRON WORKS, Inc.

Established 1899
DULUTH 1, MINNESOTA

HOISTS • DERRICKS • WHIRLEYS • BUILDERS TOWERS • UNLOADERS • CAR PULLERS • ROLLERS

For more facts, use Request Card at page 18 and circle No. 350

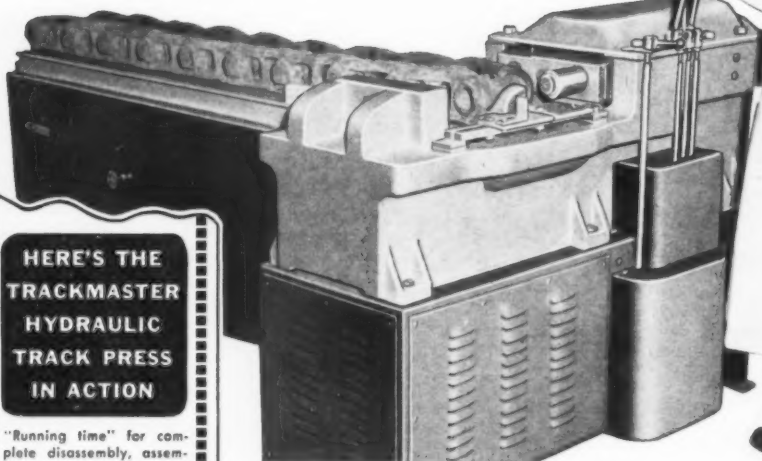


"An outstanding example of an abstract design for a utilitarian purpose" was the comment on the Missouri River Pipeline Suspension Bridge by judges of the 29th annual Aesthetic Bridge Competition sponsored by the American Institute of Steel Construction, Inc. Located at Plattsmouth, Nebr., and fabricated by the Pittsburgh-



Des Moines Steel Co., the bridge won the Class I competition for bridges 400 feet long or more. The Class II winner, a bridge with spans under 400 feet and costing over \$500,000, is the Buffalo Bayou Bridge, Houston, Texas, fabricated by the American Bridge Division, U. S. Steel Corp. The

How to CUT TRACK OVERHAUL TIME 50%!



**HERE'S THE
TRACKMASTER
HYDRAULIC
TRACK PRESS
IN ACTION**

"Running time" for complete disassembly, assembly of this complete track — 115 minutes!



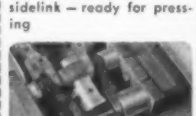
Disassembly
125 tons pressure eases pin, bushing from sidelink



Forcing head retracts — sidelink separated



Assembly
Pin, bushing aligned with sidelink — ready for pressing



Sidelink squeezed onto pin, bushing with full 125 tons force

NEW OTC TRACKMASTER TRACK PRESS

- pushes both pin and bushing at the same time
- eliminates any sidelink broaching

Slash track disassembly and assembly time in half with new OTC Trackmaster. In tests one man overhauled track in half the time. Look at these features:

- new** operation — Trackmaster pushes both pin and bushing simultaneously from the sidelink.
- new** short stroke — Trackmaster forcing head has a workstroke of only 2 inches — no long dangerous ram travel.
- new** safety — no danger of flying ram or pin — forcing head aligns perfectly with pin and bushing.
- new** power — tons of hydraulic "muscle" move rusted-tight pins, bushings quickly, easily.
- new** ease — leave grousers on (2 bolts removed) or off — no adapter handling during disassembly or assembly.

And powerful hydraulic winch pulls entire track right to Trackmaster — hydraulic indexer aligns track in saddle — then hydraulic forcing head eases out the most stubborn pins, bushings.



Please send the free full story of the new OTC Trackmaster.

Name _____
Firm _____
Address _____
City _____ State _____

I have a track pin press now Yes _____ No _____

OWATONNA TOOL COMPANY
381 Cedar Street • Owatonna, Minnesota

(Continued from preceding page)

formation is obtained by field observation by the checkup engineer.

The fourth item under progress is given schedule dates for work due but not started, and an explanation for this deviation. This is obtained by field observation and, if the explanation is not apparent, by consulting the foreman in charge of the work or the superintendent of construction.

Drawings or groups of them not yet issued for construction are listed under another subdivision. These contain a description, drawing number, status of the drawing in the drawing room or promised date of issue, and the drawing schedule date. This information is obtained from the project leader of the work order under consideration.

If pipe sketches are needed, a report includes numbers issued, number estimated, number being revised, and a notation of the date pipe fabrication is scheduled to begin. This information is received from the sketch

CONCRETE TESTERS

The world's finest low-cost precision testers.

**For
CYLINDERS
CUBES
BLOCKS
BEAMS
PIPE**

If it's a concrete tester you need—get in touch with

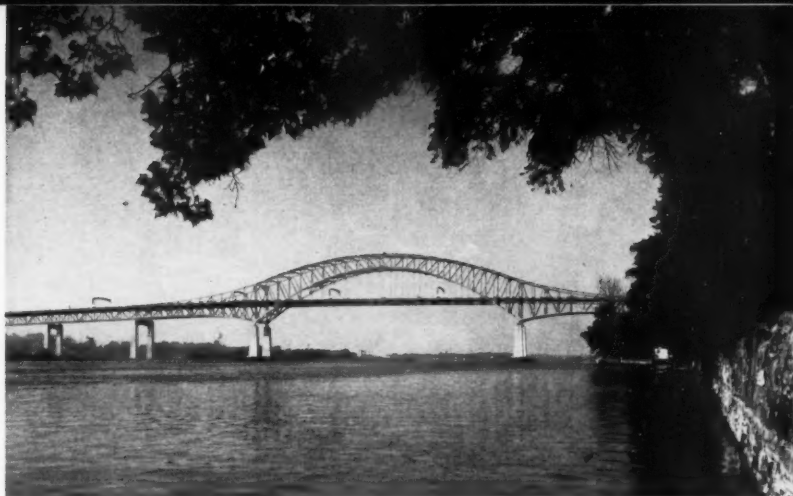
FORNEY'S, Inc.
TESTER DIVISION
P. O. BOX 310 • NEW CASTLE, PA.

For more facts, circle No. 352
CONTRACTORS AND ENGINEERS

bridges
under 400
Houston,
Corp. The



curvature of the long span appealed to the judges "because it transmits a feeling of lightness and grace". The Allegheny River Bridge, Salamanca, N. Y., is the Class III winner for bridges with fixed spans under 400 feet and costing less than \$500,000. The judges particularly commended the open guard rail which permits motor-



ists a clear view of the river. The bridge was fabricated by the Bethlehem Steel Co. Class I honorable mention is the Delaware River Turnpike Bridge between Edgely, Pa., and Florence, N. J. This structure was fabricated by the American Bridge Division, U. S. Steel Corp.

report issued weekly by the drafting room.

At the beginning of a new work order, the checkup engineer lists in one of the first checkups those drawings that will be required for the work order. This should include "Manufacturer's Drawings Required" as well as "Equipment Support Drawings", "Foundation Drawings", and those drawings that pertain to all phases of the job.

Bills of Materials

All Bills of Material that have passed through the planning department, but have not been requisitioned or purchased, are listed. These are listed by Bills of Material number, issue number, date of issue, description of material, status, and scheduled purchase date. The information is taken from the job data sheets.

Equipment and material not yet billed are itemized according to number, description, reason for equipment or material not being billed, and scheduled purchase date. This information is obtained from the job data sheets and the head of the billing section. This section should not be very detailed. At the beginning of a large job, several pages of material could be listed, but judgment should be used and only material needed early should be listed. This is material that might hold up the work, or material which requires a long time for delivery, and might endanger the scheduled completion date if not available.

All open requisitions—those not covered by purchase orders—are itemized according to requisition number, date of requisition, account number, item number if any, full description of material, deposition of requisition, and scheduled purchase date. This data may be had from the requisition files of the construction purchasing department. After preparing this list, it is submitted to the construction purchasing department for checking.

A list of all open purchase orders is tabulated, including information in the given order—purchase order number, date of order, account number, item number, vendor's name, full description of material, vendor's promised shipping date, and scheduled erection date. The list is prepared

(Continued on next page)

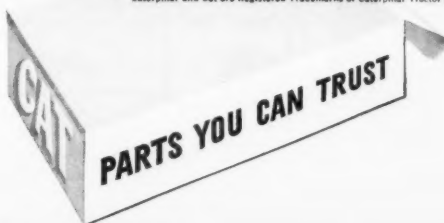


Take a piston. Its place of business in a CAT Diesel Engine is in the "heat zone"—up to 3600° F. Here's where some substitute pistons soften, crack and burn through. But not a genuine Caterpillar piston. Copper, nickel and magnesium are alloyed with aluminum to maintain hardness and strength under these high temperatures. Yet, the special aluminum alloy retains the high weight-to-strength ratio and heat conductivity of aluminum. With a substitute, can you be sure? Better see your Caterpillar Dealer for parts you can trust!

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

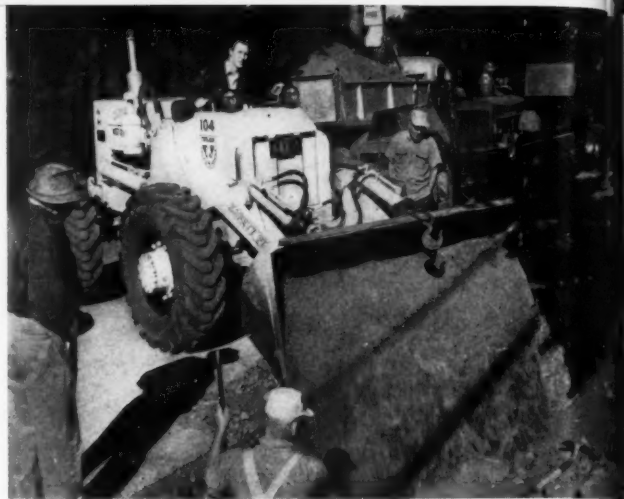
*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.



For more facts, use Request Card at page 18 and circle No. 353



That great street, State Street, Chicago, gets a new surface put down by a Barber-Greene finisher operated by J. M. Corbett, Chicago, one of three firms handling the 10-block job. The job was completed in about one week, between 10 p.m. and 6 a.m. and on two Sunday afternoons.



The first of two jobs for a Trojan Model 104 shovel with 1½-yard bucket, on the Public Service 24-inch natural gas feed line in Carlstadt, N. J., is backfilling the trench. This done, W. G. Fritz Co., Inc., West Orange, N. J., will use the rig to compact the fill.

(Continued from preceding page)

from the files of the purchasing department except for the expediting or promised shipping information. This column is left blank by the checkup engineer preparing the list and is forwarded to the chief expeditor who checks the list and supplies the shipping information.

This section of the checkup should cover any features of the job which appear to be going astray from sched-

ule or any other pertinent data concerning the job which cannot be covered conveniently in the other sections. There is no standard setup for this division.

The status of shop fabrication includes listing the number of sketches being fabricated, number complete, and number held up by lack of materials or drawings. This data is obtained from the shops by contacting the material section of the planning department, or from the 'Line List'

maintained by the material section and from the daily field report on sketches.

General comments also include the job status as compared to schedule and the ranking a job has on the weekly report, 'Sequence of Importance'. This report is prepared by the scheduling section of the planning department each week after the operating department has been contacted. The operating department designates the work orders it is most anxious to

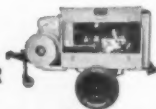
get into operation and lists them in a sequence of preference for operations. The determining factors for the makeup of this list are sales contracts for products from units under construction and any particularly applicable operating conditions. These are things which the construction department has no other way of knowing.

The checkup is intended as a versatile report to change in size as the conditions require, and to concentrate



**THE SMITH 75-P POWERS
YOUR AIR TOOLS FOR LESS**

**SMITH
120-P
COMPRESSOR**



**SMITH COMPRESSORS ARE
IN USE THE WORLD OVER**



**SMITH
45-P
COMPRESSOR**

Ask any Smith Compressor owner about economy! He'll tell you how the Smith 75-P replaces big compressors on scores of jobs—adds to job profits! The 75-P operates one heavy-duty paving breaker—two medium-duty paving breakers—or one 45-lb. rock drill. Nearly all engine and compressor parts are instantly available at reasonable cost from your Dodge Truck dealer. The 75-P is powered by a Chrysler Industrial Engine, using 3 cylinders for power, 3 for compression. Designed for high compression with large valve area, smooth carburetion. Super-finished bearings and pistons; water-jacketed discharge area. Send coupon for free literature.



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483 College St., Bowling Green, Kentucky
Rush free literature on the Smith 75-P ☐ 120-P ☐
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WHEN WINTER CLOSES IN



BURCH Plows get rid of SNOW fast!

BURCH-built "Ross" Snow Plows have been developed through years of heavy snow plowing experience. Their rolled "Sno-Flo" moldboards easily break through the heaviest drifts—eject snow in a continuous flow. No dead weight—minimum resistance—no side draft.

BURCH-built "Ross" Plows are self adjusting to level or crowned road surfaces by means of their unique swivel push angles. Designed and built to give outstanding performance through many seasons of service.



**Models for
Trucks or
Motor Graders**

- "V"-Type
- One-Way
- Dozer-Type
- Reversible
- Trip-Type

Write Dept. CE-117
for literature.

The BURCH Corporation
CRESTLINE, OHIO, U.S.A.

MANUFACTURERS OF EQUIPMENT
FOR CONSTRUCTION AND MAINTENANCE
OF ROADS AND STREETS



On the Illinois Toll Road, an Allis-Chalmers HD-16 tows a Gebhard tamping roller and an Amco harrow. The combination of roller and harrow compacts the fill and also aerates it. The disks loosen the top layer of dirt and expose it to the air, thus drying it out. W. M. Wyant Co., Lake Forest, Ill., is the contractor.



Time catches up to the Acropolis in Athens. The tourist attraction has complicated the city's traffic and parking problems to such an extent that a parking lot is being built just below the "upper city". Odon & Odostramatou, Athens, uses an Eimco tractor excavator to level the area.

on the points of weakness of the work order. It should not be made as a routine report.

When the job is completed, all checkups are filed with the other correspondence on the work order. The file of checkups should serve as a complete record of the job, for reference as similar jobs occur. By studying the faults of a former job, it is easier to make a new job go better.

Next month's article will deal with "Planning and production: Expediting materials".

Cone Automatic buys Pippin Construction

Cone Automatic Machine Co., Inc., Windsor, Vt., has purchased the assets of Pippin Construction Equipment, Inc., White River Junction, Vt. Cone Automatic formerly manufactured the products distributed by Pippin—excavators, etc.

M. J. Pippin has been appointed general manager of the new division, Conomatic-Pippin.

Kolman Vibrating Screens Are Easily Installed on Any Conveyor



Now you can readily convert your present conveyor into an efficient, low-cost conveyor-screen loading and screening plant.

Regardless of the make or size of your existing conveyor, there is a Kolman Screen to suit your application. Installation is easy because the Universal Mountings are designed to permit use on any make conveyor or bucket loader. Only a Simple Drive Arrangement from a power source on your conveyor to the screen jack shaft is necessary as shown in the photo. A Head Pulley Clutch is Optional equipment to provide for separate operation of belt and screen.



WRITE FOR PRICES AND LITERATURE

WHY KOLMAN SCREENS ARE IDEAL FOR CONVEYOR INSTALLATIONS—

Floating Action!

Freedom of action that gives full vigorous vibration for clear, accurate separation without clogging or blinding.

Minimum Vibration Transfer!

Force of vibrations is not transmitted to screen frame to damage other equipment or screen itself!

Compact Design!

More screening capacity per square foot than most competitive screens. Added ease of installation.

Folding Feature!

Single-deck KOLMAN screens fold under conveyor without disassembly for ease in transportation.

Priced Right!

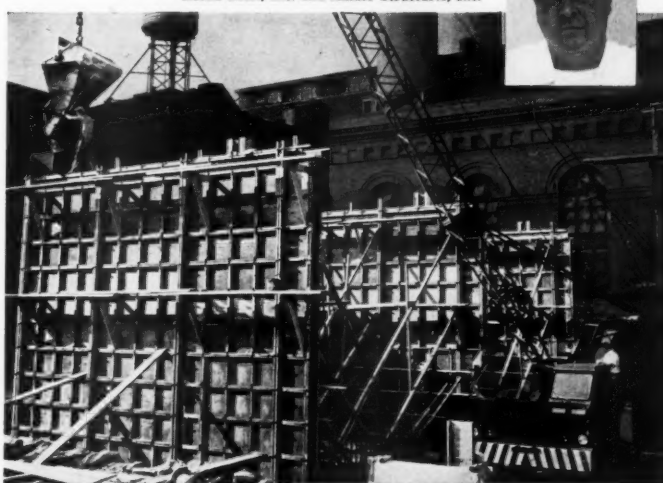
Design permits rugged construction without bulky, expensive weight. Few moving parts help keep maintenance costs low for long-run economy.

KOLMAN Manufacturing Co.

4922 W. 12th St. Sioux Falls, S. D.

"The industry has needed an on-the-job form assembly system like this for a long time."

Lawrence H. Johnston, Form Construction Superintendent; Rosoff Bros., Inc. and Amdor Structures, Inc.



Major Concreting Economies Laid to New Richmond Forming Method

"Everything goes faster—setting the forms, pouring, taking the forms down. No doubt about it, the new Richmond Snap-Ty Form System is the modern way to form and pour."

Mr. Johnston has used this prefabricated panel system on several Rosoff-Amdor projects. . . . started as soon as Richmond introduced its new booklet of modular panel forms and made available hardware for putting together prefabricated panels easily—right on the job.

Rosoff-Amdor builds the panels on the job—uses them over and over again. For this job, they stacked them horizontally, used the walers vertically. For walls under 15 feet, they use 3,000-lb. Richmond Snap-Tys; for the high walls, 5,000-lb. Snap-Tys. They pour 26-foot-high walls like these in a single day in one continuous pour.

For erection of light foundation wall forms, Richmond Snap-Tys and accessories give you worthwhile savings all along the line. Head washers of Snap-Tys are made of special-strength steel securely held by a clean, well-formed upset at each end to give positive bearing to the Tyholder. This transmits the full strength of the Snap-Ty to the

walers and prevents costly form breaks. Break points are set back from the wall face. This permits clean, easy stripping and prevents spalling of the concrete.



You, too, can benefit by using this fast, easy method for erecting light foundation walls. See for yourself. Send for your copy of the new Richmond Snap-Ty Form Book containing complete diagrams and forming data. It's free for the asking.

Richmond does not make, rent or sell forms. Richmond sells form-tys and accessories only. The free 20-page booklet tells you how to make and assemble your own forms that can be used over and over. Send for it. Ask, too, for your copy of the new Richmond Handbook, which describes the full line of Richmond-engineered tying devices and accessories. Write to: RICHMOND SCREW ANCHOR COMPANY, INC., 816 Liberty Ave., Brooklyn 8, N. Y. or 315 South Fourth St., Saint Joseph, Mo.



Some of the new accessories developed by Richmond for easy on-the-job assembly of prefabricated modular form panels.



For more facts, use Request Card at page 18 and circle No. 357



About 8,000 yards of concrete was poured for the bowl and upper stands of the Green Bay Packers' new football stadium in Wisconsin. Here a Smith mixer, mounted on a Four Wheel Drive Model C6-457 truck, turns out concrete for this precast seat-pouring project.



Not a Swiss chalet nor a rest station for mountain climbers, but a sand-aggregate tunnel for a dam will be built out of this Armo Multi-Plate pipe. The elliptical 90-inch sectional plant structure will be 340 feet long. The dam is located high up in the Alps near Grimentz, Switzerland.



3-WAY SOIL BLENDER!

Here's the one multi-purpose tool every contractor needs to speed his work and make him more money! Solving soil problems is a specialty of Rome Disk Plowing Harrows. Have you ever encountered these problems?

1 Dead, dry dirt on the fill that blades like ashes and packs like sawdust? Wet it down with your water trucks, then mix it deep with a Rome Disk Plowing Harrow to put it in good shape for specified compaction.

2 In-place materials to mix? Soil cement materials, stratas or lifts in fills can be readily turned into a compact, homogeneous fill by mixing and pulverizing with a Rome.

3 Too wet to work? Blend wet soil with dry materials, plow deep with a Rome Disk Plowing Harrow to dry out your fills and cuts.

See your Rome Dealer for complete details — he is also your Caterpillar Dealer.

ROME PLOW COMPANY, Cedartown, Georgia

Rome Disk Plowing Harrows

For more facts, use Request Card at page 18 and circle No. 358

Report on preserving materials and equipment

Papers presented at a joint military-civilian symposium on the preservation of materials and equipment are contained in a 524-page volume released through the Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C.

The papers cover a wide range of problems in the prevention of deterioration of such materials and

equipment as vehicles, construction products, metals, engines, electrical devices, and rubber. Preservative materials, organic coatings, and liquid corrosion inhibitors are also discussed.

The report of the proceedings, "Symposium on Preservation for Mobilization Requirements", is priced at \$8 and may be ordered from the Office of Technical Services.

Let-WesCo appoints five to new sales positions

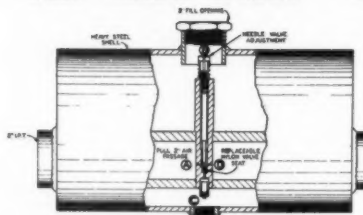
R. D. Paustian and E. H. Russ have been named to sales posts in the Wire Rope Division, LeTourneau-Westinghouse Co., Peoria, Ill. Paustian, formerly a member of the firm's sales promotion staff, will become a wire rope sales representative in the central and northeastern area of the country; Russ has been assigned to the southeastern territory.

N. J. Richart, formerly wire rope sales representative in the southeastern states, has been transferred

to the company's equipment sales department as assistant district representative. Richart, who will continue to make his headquarters in Atlanta, Ga., will work with the firm's distributors in eight southeastern states.

C. L. Bolton and C. L. Petersen have been named to posts in the domestic sales division. Bolton has been made assistant to the central area sales manager, E. L. Cline; and Petersen will work with western area sales manager, F. W. Duke.

LARGE CAPACITY--LOW COST Air Line Oiler--Alcohol Feeder



CUT AWAY VIEW SHOWING DESIGN FEATURES

Originally designed as a built-in component of the Clifden Air-Cat, these jumbo size Air Line units are now available for general use. The full 2" passage allows maximum flow of air to equipment. The Air Line Oiler is particularly suited for the new, large drills, since they are the only unit on the market with capacity to keep a 4½" drill working a full shift on one filling and with large enough air passage to allow maximum air flow to drill. The Anti-Freeze Feeder will enable the rock contractor to eliminate the annoyance of air equipment freeze-ups during cold weather, and yet, because of the well designed valve regulation, the flow of anti-freeze can be controlled to as little as one drop per minute. This is a very important feature since too much anti-freeze will flush lubricating oil out of the air equipment.

- MODEL 250 JUMBO JR.
AIR LINE OILER 2½ GAL. \$100.
- MODEL 500 JUMBO SR.
AIR LINE OILER 5 GAL. \$150.
- MODEL 250A AIR LINE
ANTI FREEZE FEEDER 2½ GAL. \$120.
- MODEL 500A AIR LINE
ANTI FREEZE FEEDER 5 GAL. \$180.

CLIFDEN ROCK TOOL CO., INC.
BOX B 2 ROCKAWAY, N. J.

AD 55-1



**AIR-CAT
ROCK DRILL TRACK**

HOLLOW DRILL STEEL
CARBIDE TIPPED DRILL RODS
YELLOW BRUTE AIR HOSE
AIR LINE MANIFOLDS
CARBIDE ROCK BITS
PAVEMENT BREAKER TOOLS
HAND CHIPPING HAMMER TOOLS
CARBURIZED DRILL STEEL
LONG HOLE COUPLINGS & SHANKS

For more facts, use Request Card at page 18 and circle No. 359

CONTRACTORS AND ENGINEERS

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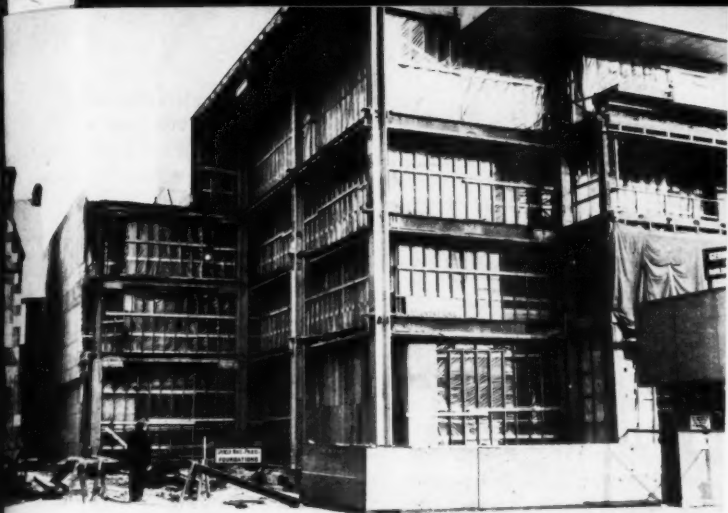
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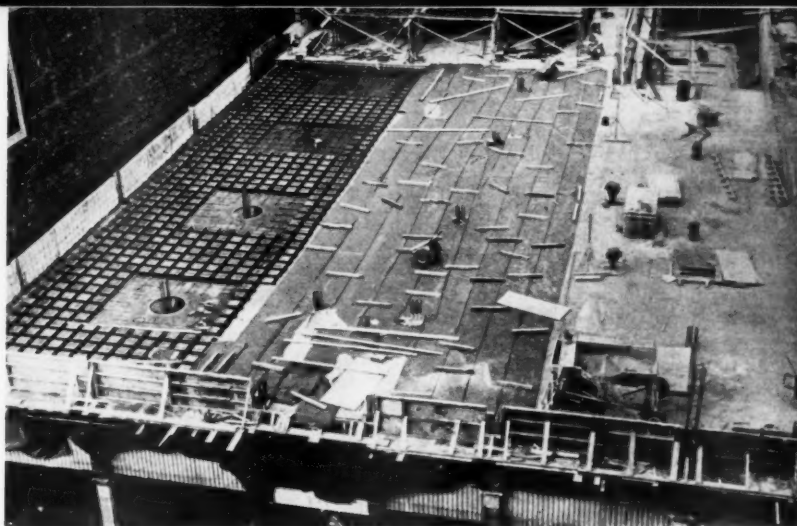
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Nearly an acre of transparent film keeps men, concrete, and plaster from freezing on the new 20-story home office building for the Mutual Benefit Life Insurance Co., Newark, N. J. The Visqueen film, made of Bakelite polyethylene, was stapled to temporary wooden frames and held in place with strips of lath.



Blankets of Cell-U-Form protect concrete curing during a construction project in St. Paul, Minn. The blanket insulation on the first floor level and the sides of the building holds in the heat long enough to give concrete the necessary curing and strength. Watson Construction Co., Minneapolis, holds the contract.

New chief engineer for Concrete Fabricators

The post of chief engineer for Concrete Fabricators, Inc., Cleveland, Ohio, has been filled by C. Andrew Pretzer. The company, which has plant operations in Crestline, Ohio, specializes in the manufacture and installation of prestressed-concrete beams for bridges. It is an affiliate of Intrusion-Prepakt, Inc., concrete construction and maintenance contractor of Cleveland.

Pretzer, who will work from the Cleveland executive offices, was formerly assistant head of structural design for McGeorge, Hargett & Associates, a consulting engineering firm of Cleveland.

American Cyanamid personnel news

Dr. William H. Bowman and Neil B. Conley have been named general manager and assistant general manager, respectively, for the Organic Chemicals Division, American Cyanamid Co., New York, N. Y. Bowman, who holds a doctorate in industrial chemistry, was formerly the division's assistant general manager. Prior to joining American Cyanamid, he was vice president of sales and operations for the Jefferson Chemical Co.

Conley, formerly director of sales and manager of commercial operations for the division, has been with the firm since 1940. Prior to joining the firm he was manager of the Ultramarine Co. of New York, and before this was president of the National Ultramarine Co., Cincinnati, Ohio.

Sales manager named for Thor Power Tool branch

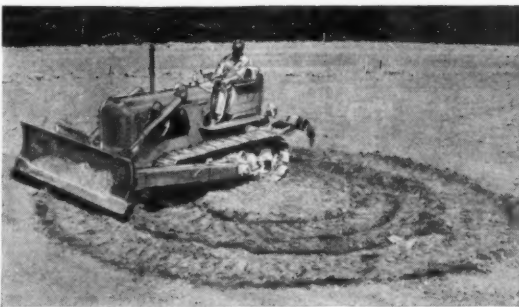
A. V. Moroz has been appointed electrical tool sales manager for the Chicago, Ill., branch of the Thor Power Tool Co., Aurora, Ill. He succeeds Arthur H. Nelson, retired.

Moroz joined the Chicago branch as a service engineer in 1954. Nelson started with Thor in 1910 and seven years later left the firm to be an automotive manufacturer's and jobber's salesman. He rejoined Thor in 1941 and helped develop the company's first automotive valve refacer.

ONLY FROM OLIVER



...new POWER-TURN steering speeds up your angleblade work



Even on sharp turns like this you have full power on both tracks! There's no speed transfer from one side to the other. Each track is always working at full power and under complete control. You never lose power on any turn. Two simple steering levers make operation easier.



THE OLIVER CORPORATION

400 West Madison Street, Chicago 6, Illinois

a complete line of industrial wheel and crawler tractors and matched allied equipment

For more facts, use Request Card at page 18 and circle No. 360



All concrete for the floor slab was mixed in the portable Mixermobile. The Ford truck dumps batches into the aggregate hopper, left; this slides up the inclined rails and dumps into a 2-yard mixer which chutes the concrete into a moving hopper. This dumps to a stationary hopper on the 42-foot-high tower.



At the delivery end of the Mixermobile, a workman waits for a gasoline-driven Whiteman power buggy to be filled with $1\frac{3}{16}$ yards of concrete. This power buggy, and others on the job, rides on $4\frac{1}{2} \times 8$ -foot wooden mats built of 1×6 boards.

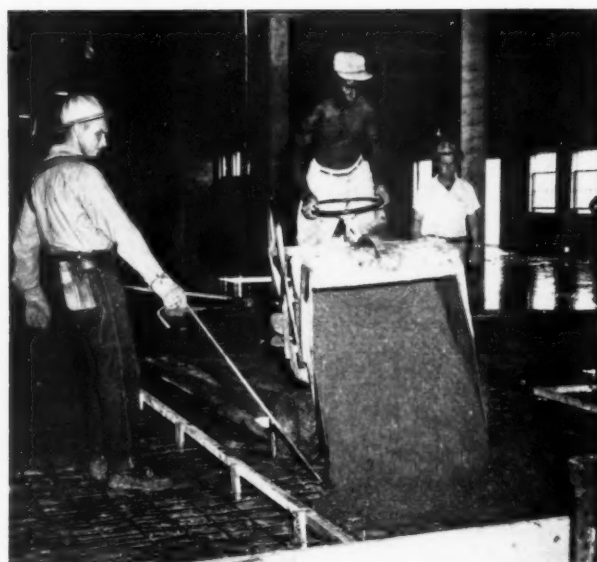
Efficient concrete placing speeded work on the 240,000-square-foot floor slab of the Gateway Shopping Center in Beaumont, Texas. In a well-coordinated operation, concrete was delivered from a portable mixing rig to fast-moving power buggies that placed up to 20,000 square feet of floor per day.

This modern shopping center, located at the corner of Stag Drive and 11th Street, will house as many as 45 separate retail establishments. The rectangular-shaped building, designed by Irving R. Klein & Associates, Houston, Texas, has a 1,300-foot front and a 25-foot depth. Although the

construction was on the ground floor, provisions have been made for a second story to be built on a 200-foot section at the center of the building. Tile brick forms the side and back walls of the building, while the front is of aluminum and glass construction. An asphaltic-concrete surfaced parking lot provides space for 2,500 cars.

Fisher Construction Co., Inc., Houston, held the \$2 million general contract for the shopping center which was built for T. J. Berenson, Boston, Mass. Fisher started work in September, 1956 and, although he was delayed by a very wet winter and spring,

Small rigs do king-size work



A workman lifts No. 6 wire mesh as the Whiteman power buggy operator dumps a load of concrete into the forms for the floor slab. The floor slab consists of 4 inches of concrete laid on from 4 to 6 inches of compacted sand.

ALL-NEW

Heater-Planer

ENDS DANGER OF FIRE!

ONE OPERATOR in one operation heats, softens, planes and conditions, asphalt streets, highways and airport runways. Leaves raw, clean, smooth surface, like newly-laid—in perfect condition for seal-coating and/or resurfacing. Does this job with a thoroughness and economy never before found in any road-maintaining machine or combination of machines. In actual cases, costs have run as low as .10 per yard!

U. S. Patent No. 2,705,906. Other patents pending.

For complete information and cost operating data, ask your dealer or write:

MONATCO MFG. CORPORATION
1401 Woodland Kansas City, Missouri

Dealership available in a few areas

- Completely re-designed from the ground up
- NEW MONATCO MODEL M-2**
- Offers for the First Time:
- Main drive engine over front axle, out of heat zone.
 - Operator, fuel tanks, aux. engine in rear of heat zone.
 - Two fuel cut-offs for extra safety.
 - All parts in heat zone subject to heat damage water-cooled.
 - Open frame with grill—heat rises straight up from heater hood.
 - Maximum visibility of hood and blades from operator's position.
 - Standard automotive parts throughout—this is NOT a farm implement.
 - More power—15 forward speeds, 3 ft./min. to 25 MPH.
 - Extra fuel capacity, 280 gal. Enough for 10 hrs. heaviest planing.
- PLUS these other MONATCO features for efficient, low-cost operation:**
- Patented MONATCO burner and heater hood provide UNIFORM temperature of 2000° or more.
 - No incineration of asphalt with reducing flame and strict control over primary and secondary air. NO SMOKE.
 - Separate motor powers fuel and air pumps, independent of speed machine is moving.
 - Two hydraulic systems, for steering and for raising hood and blades.

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ON

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JOBBS

pre-drain faster with
HIGH-CAPACITY
equipment by

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WELLPOINT CORP.
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Hammond, Ind. Houston, Tex. Jacksonville, Fla.

Catalogue on request

For more facts, circle No. 362

CONTRACTORS AND ENGINEERS

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Work pouring concrete floor slabs

Power buggies, supplied by portable mixing rig, lay up to 20,000 square feet per day for shopping center

completed the building late this summer.

Pouring floor slab

The floor slab, consisting of 4-inch-thick concrete reinforced with No. 6 wire mesh, was laid on from 4 to 6 inches of compacted sand. Concrete was mixed at the front of the building by a portable Mixermobile. This truck-mounted mixer received 1½-yard batches of aggregate and cement from dump trucks carrying three batches. The trucks dumped into a hopper that was pulled up an incline and emptied into the mixer. The 2-yard mixer discharged concrete into a moving tower hopper that emptied into a fixed hopper mounted on the front of the tower. The tower, rear-mounted on the Mixermobile, can be used to pour second floors.

From the discharge hopper, Whiteman power buggies carried the concrete to the section of floor being poured. These power buggies, which carry a driver as well as 13/16 yards of concrete, traveled on wooden mats. Three or four of the Whiteman power buggies shuttled from mixer to point of placement, delivering as much as 60 cubic yards an hour.

After the concrete was dumped, it was spread with shovels and leveled with screeds and hand floats. When the mix had set up enough, it was float-finished by a Stow troweling machine with 3-foot-diameter blades. Final finishing was applied by a heavier Whiteman finishing machine with 4-foot-diameter blades. The surface was then sprayed with a liquid curing compound.

(Continued on next page)



After the concrete had set up enough, a workman float-finishes it with a Stow 3-foot-diameter troweling machine. Final finishing was later achieved with a heavier machine, and the surface sprayed with a liquid curing compound.

Carpenters set up the form-work for the front beam of the shopping center. The Time-Saver scaffolding supports 4×6 carriers which, in turn, support 4×6 stringers. The stringers support Universal form panels, which are the form for the bottom of the beam.



A West Skytrak fork lift moves a stack of Fiberglas roof insulation from a storage pile to the roof. Cartons of Texaco roofing asphalt, in front of the fork lift, will be broken up and melted in the heater, right.

FOR 50 YEARS...
Finest in the Field!

Ask the contractors who use the Omaha Dragline Buckets. Learn how its wedge shape makes easier loading and emptying...its perfect balance for smoother carrying and dumping...its smoother interior, high arch, continuous lip makes it your best buy. Extra strength is built in at every point of strain.

Strike pay dirt now! Complete information and specifications await your letter.

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OMAHA
DRAGLINE BUCKETS

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(Continued from preceding page)

Concrete for the floor was a 5-sack mix that called for a 3,000-pound break at 28 days. The batches for the mixer were supplied by the Transit Mix Concrete & Foundation Co., Beaumont.

Columns for the building were seated on belled concrete footings that were drilled to a 10-foot depth. Along the length of the building, the columns were, in general, on 50-foot centers, and 25 feet deep. The round interior columns of the structure varied from 12 to 16 inches in diameter and were, as a rule, 14 feet high. These were formed with Sonotubes. The rectangular outside columns were formed with conventional plywood forms.



A Caterpillar D4 Hi-Lift loader moves sand from a stockpile in front of the building to the ground within the building to make a 4-inch compacted sand fill for the concrete floor.

"I tune up my GMC Diesels twice a year —then forget them"

—says Paul Wagner, Jr., of Lexington Sand & Gravel, South Acton, Mass., in reporting on his giant dumps

PAUL WAGNER doesn't believe in pampering trucks. His have to haul at least five 40-mile round trips a day. And they have to do that every day.

King-size Loads

Lexington's trucks haul real payloads, too. The GMC DW974 in the picture totes 19 tons. His GMC D662 semitrailer dump handles 20. And even when a job takes them over the best roads around, they still have the stop-and-go penalties of heavy daytime traffic.

5 Miles a Gallon

Despite their heavy-hauling assignments, Wagner's GMC Diesels are averaging better than 5 mpg. That's 50% better than gasoline trucks doing the same job, he reports.

No Overhauls in 125,000 Miles

Most important of all, these GMC's seem to require amazingly little servicing. One Diesel has already clocked 125,000 miles. It's never been overhauled—there's no need in sight. Yet Wagner's other-make trucks had to be rebuilt at 100,000 miles.

Next Truck a GMC, Too

"Since my first GMC in '54, I haven't bought anything else," Wagner says. "If I needed another truck right now, I think it would be another GMC. They give me just what I want in a truck. And I've never seen another firm so ready to stand behind their product after you've bought one."

GMC TRUCK & COACH
A General Motors Division



SPEC SHEET ON THE GMC DW970 — NOW WITH TURBOPOWER DIESEL

Capacity—59,000 GVW-90,000 GCW
Power—236 h.p. delivered by new 6-cylinder, 2-cycle Turbopower Diesel
Transmission—Five-speed Synchro-Mesh with over-drive and 4-speed auxiliary
Axles—11,000-lb. front and 48,000-lb. dual rear

EVEN WITH A 19-TON LOAD ON ITS BACK, this GMC DW974 Diesel takes on tough pulls like this without sweat or strain. Its big, 2-cycle Diesel delivers top torque—all the load-moving power it takes to handle the most punishing hauling conditions on or off the highway.

For more facts, use Request Card at page 18 and circle No. 365

Precast channels in roof

Precast, reinforced-concrete roof channels, made by the Rackle Co. of Texas, in Houston, formed the greater part of the roof. A typical channel was 24 inches wide, 9 inches deep, and 25 feet long. Four stub ends of reinforcing steel extended from each end of the channel to guarantee a good tie with the roof beam.

The step by step procedure for building the roof consisted of forming and pouring the columns, and then erecting the falsework to support the beams connecting the tops of the columns. Then, the plywood forms for the beams were built on the falsework, and the precast channels were set side by side with their ends resting on and becoming a part of the beam forms. Finally, the beam was poured and the ends of the roof channels enclosed in the concrete.

The beam forms were supported by Time-Saver tubular tower shoring, made by Concrete Forms Corp., Chattanooga, Tenn. The beam bottoms, resting on 4x6 stringers, were made up of Universal form panels. These steel-backed, plywood panels extended out from the sides of the beam to form a work platform. The conventional plywood forms for the sides of the beam were held in place primarily by the weight of the roof channels, which rested on the sides of the form.

An Insley 1/2-yard crane picked up the roof channels from the bed of a truck and placed them side by side on the 25-foot span between the beams.

Roofing operation

Putting on the builtup asphalt and felt roofing was primarily a hand operation, but the work was speeded by efficient material handling and experienced crews. Packages of Fiberglas insulation and rolls of Koppers tarred felt were lifted to the roof by a West Skytrak fork lift. Texaco roofing asphalt was melted in heaters on the ground and bucketed to the roof with a hand pulley. The buckets of hot asphalt were then placed in a two-wheel buggy and pushed to where they were needed.

Workmen started roofing operations by hand-troweling mastic in the cracks between the roof channels. After a light prime coat of asphalt was sprayed on the tops of the channels, asphalt mopping was done and one layer of felt put down. On top of this, panels of Fiberglas insulation were placed. Then four layers of asphalt and felt were put down in one operation. The felt was rolled out in overlapping layers to give the four-ply thickness. This operation was followed by a final coating of Koppers Old Style pitch and stone chips.

Site grading

The existing ground level was raised as much as 3 feet in the building area and 2 feet in the parking lot area. Big Mack dump trucks hauled in 80,000 cubic yards of earth fill from the spoil banks of drainage ditches about three miles away. The fill was leveled with Caterpillar No. 12 motor graders and compacted by sheepfoot rollers

CONTRACTORS AND ENGINEERS

pulled by either Cat D7 or D8 tractors.

The base for the parking lot consists of 10 inches of sand-stabilized iron-ore gravel. Caterpillar DW10 scrapers hauled in the iron-ore gravel, or slag, from a railroad siding several blocks away; the sand was hauled in by dump truck. After the sand and the slag were spread, they were mixed by a pulverizer. Sheepsfoot and pneumatic rollers compacted the base to 95 per cent Proctor. A 1½-inch layer of asphaltic concrete was used to surface the parking lot.

Personnel

The project manager for the Fisher Construction Co., Inc., is Harold L. Hagemeyer. Oscar Telg is the superintendent. Representing Irving R. Klein & Associates is Oscar E. Wells, Jr. Representing T. J. Berenson, the owner, is Tom Muchard. THE END

N. J. parkway issues upside-down road map

The New Jersey Highway Authority has issued an upside-down map of the Garden State Parkway. The map lays out the road's southbound route as a motorist would actually find it along the road. Towns located to the right and left of the parkway as a motorist drives south are shown that way on the map. The northbound route is mapped out in the conventional way.

Another addition to the map is a comprehensive directory of exits which lists practically all points near the parkway and exits used to reach them.

Copies of the map may be obtained from toll booths or by writing to the Public Relations Division, Garden State Parkway, 12 Broad St., Red Bank, N. J.

Master Builders names Hinds vice president

Frank Hinds has been named vice president of the United States sales of the Master Builders Co., Division of American-Marietta Co., Cleveland, Ohio. Hinds, who joined the company in 1932 as a salesman, was made Rocky Mountain and Central states division manager in 1941. In 1955 he was promoted to Central and Northwestern states regional manager, a post he held until his present appointment.

Utica-Bend appoints

Harold C. Clark has been appointed general sales manager of diesel equipment of the Utica-Bend Corp., Utica, Mich., a subsidiary of Curtiss-Wright Corp., Woodridge, N. J. Clark will direct the sales of the Mercedes-Benz diesel engine line, recently acquired by Curtiss-Wright, for all industrial applications and the entire marine industry.

Francis E. Brylski has been made an assistant to Clark. Both men were formerly with the Findlay Division of Gar Wood Industries, Inc., Clark as sales manager, and Brylski as assistant to the vice president in charge of sales.

Electrical equipment plant planned by Harnischfeger

Big plans for next year are being made by Harnischfeger Corp., Milwaukee, Wis. With the start of the new construction season, the firm will begin work on a 300,000-square-foot plant at Dubuque, Iowa, to house manufacturing operations on Zip-Lift and Hevi-Lift electric hoists, electrical control equipment, and motors and brakes for overhead cranes and electric shovels. The plant will be located on a 75-acre industrial site on the Lake Peosta channel off the

Mississippi River. When it is completed late in 1958, it will employ between 600 and 800 persons.

Problems of the road-building industry topic of booklets

Two booklets from the American Road Builders' Association discuss "The Highway Construction Industry in a Long Range National Highway Program" and "An Evaluation of the Credit Problems of the Highway Industry". The first booklet covers highway construction levels that can be

supported by industry, expenditures and funds available, and federal-aid and state obligations.

The second booklet details matters affecting the study; reports from equipment manufacturer, and distributors, producers of materials and supplies, highway contractors, bonding and financing companies, and state highway departments; and findings and recommendations of the task force committee.

Both ARBA task force reports cost \$1 each and may be purchased from ARBA headquarters, World Center Bldg., Washington 6, D. C.



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Not only does 210 hp Tournatractor get to your jobs faster... it also finishes them sooner. Four speeds forward to 17 mph and two reverse to 7 mph help you complete most tractor assignments in as little as half the time that it takes the average crawler-tractor.

Figure for yourself
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in savings to you:

1. Greater speed on the job; completes each assignment faster.
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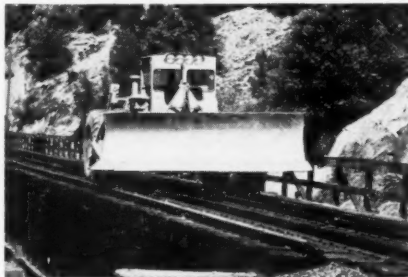
3. Fast one-man moves; makes it easy to keep Tournatractor profitably busy at all times, lets you fill in with small jobs between big ones with no idle-time losses.

4. Rubber-tired tractor's long range drive-yourself mobility and versatility; lets you move with the seasons, keep busy the year-around.

Tournatractor has proved itself in every climate, under all sorts of weather conditions. It can save YOU time and money. Write or phone for more information on this versatile, high-speed tractor-on-rubber.

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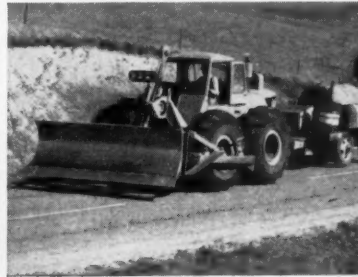
A major western railroad uses their rubber-tired Tournatractor for fast emergency slide-clearing service. Rig follows tracks... over trestles... thru tunnels... or travels by highway. Big, low-pressure tires do not damage track, ties, switches, or trip block signals.



Tournatractor often goes where other tractors would bog down. Full-sealed wheels, flywheel-mounted generator and electric motors are not affected by water or dust... nor heat or cold. Lubricants do not wash out because oil and grease fittings are water tight.



Owners send Tournatractor job-to-job with confidence. They know its easy-to-handle electric-power controls, and big 4-wheel air brakes, enable Tournatractor to maneuver easily in tight quarters, without interference to traffic. Tractor often tows own fuel and supply trailer.



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Where quality is a habit

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Proper lubrication lengthens life of portable air tools

by B. CORRIGAN, Technical and Research Department

The Texas Co., Beacon, N. Y.

The modern high-speed air or pneumatic tool is an assembly of precision mechanisms built to very close tolerances. Such tools are portable, self-contained in regard to the propelling and operating mechanisms, and function by the energy resulting from the expansion of compressed air.

The basic purpose of any air tool is

to supplant tedious manual labor with the far more rapid and efficient method of automatic operation. This is accomplished by subjecting the working end of the tool to rotation, percussion (rapid hammering), constant pressure, or a combination of impact and rotation.

There are several types of pneumatic tools. In general, air tools fall into two basic categories: rotary vane tools—including grinders, sanders, buffers, drills, reamers, tappers, stud setters, wrenches, screw drivers, nut setters, and percussion tools—including chipping hammers, scaling hammers and riveters.

There are, in addition, numerous tools that can employ a combination of these two principles. The rock drill is an example.

Rotary vane tools

The air-driven motor is the heart of the rotary pneumatic tool. The rotor is fitted with suitable vanes and drives the working mechanism, either through direct drive or suitable reduction gearing. Such motors are equipped with control devices such as governors, throttle valves, and a variety of clutches, depending upon applications involved. This type of air tool has certain outstanding features, including ball bearings, easily adjusted attachments, excellent flexibility of control and, usually, a built-in lubricator.

Lubrication requirements

To function at its best, the rotary vane tool must be lubricated properly. The main parts to be lubricated include vanes and cylinders, reduction gears and bearings.

The vanes and cylinders require a well-defined mineral oil of from 100 to 500 secs. Saybolt Universal Viscosity at 100 degrees F, depending upon temperature, speed, and load. Chemical stability, rust protection, and resistance to oxidation and gum formation are important requirements of the oil. In some designs, the oil supply is carried in reservoirs in the tool and delivered to the air stream by means of a lubricator. In other designs, a line oiler may be installed. Sometimes a combination of both is used.

The planetary gears and bearings are grease-lubricated by pressure gun through suitable fittings. The grease should be a product manufactured particularly for this type of service. It should be prepared from selected soaps and mineral oils which are of proven stability so that the final grease will have adequate resistance to oxidation. Oxidation inhibitors are included in the better greases, as well as rust inhibitors for applications where water may be present.

Considerable churning occurs when the gears are operating, meaning that fresh surfaces of grease are being exposed continually to the oxidizing effects of air. These effects usually will

Do the job quickly and Efficiently with **FARRELL-CHEEK**



BAR BENDERS

SENIOR MODEL

ALSO AVAILABLE IN JUNIOR MODEL

BAR CUTTERS



SENIOR MODEL

JUNIOR MODEL

FARRELL-CHEEK STEEL CO.

HIGHEST QUALITY ELECTRIC FURNACE CARBON AND ALLOY STEEL CASTINGS

FARRELL'S CARBON

STEEL CASTINGS

F-C HARD EDGE

STEEL CASTINGS

F85 STEEL CASTINGS

RAILROAD CASTINGS

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Sprockets, Traction Wheels,

Chains, Buckets, Rollers,

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GEARS AND PINIONS

"True Tooth" Gears and

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CRANE WHEELS

Overhead, Gantry, Mono-

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STOKER PARTS

Furnace Tools,

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Complete Line Wire Rope

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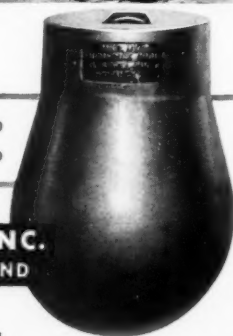
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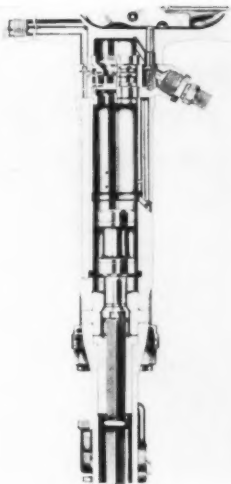
Makers of Manhole Frames, Covers and Steps • Storm Gratings
Meter Frames and Covers • Centrifugal Pumps • Grey Iron Castings

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CONTRACTORS AND ENGINEERS

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**If the proper lubricant is used to protect the equipment,
the effects of water, dust, dirt, and heat may be lessened**



Oil of the lightest viscosity compatible with temperature and load is required for this Joy pavement breaker, which needs lubrication for cylinder, reciprocating piston, working valve mechanism, and throttle valve.

be accelerated by the increase in temperature which develops due to internal friction in the lubricant itself. Obviously, deposits accumulating around gears or bearings will prevent free rolling and therefore should be avoided by the use of a suitable grease.

Percussion tools

Where percussive action is employed, air pressure acts on the tool mechanism in much the same manner as steam acts on the pistons of steam engines. In other words, the tool mechanism involves a cylinder with suitable companion piston and valve arrangement for the admission of air at the proper time, according to the number of strokes per minute or percussive frequency required.

Usually, two sets of valves are involved—the throttle valve by which the operator controls the amount of air admitted, and the working valve which, through suitable timing, controls the frequency with which the air pressure is allowed to react on the piston. As the piston moves back and forth within the cylinder, it strikes rapidly upon the head of the working tool.

Lubrication requirements

Those parts which require lubrication include the cylinder, the reciprocating piston, the working valve mechanism, and the throttle valve. The main moving parts are the piston and working valve.

The lubricant for this type of tool must be such as to lubricate adequately with the least amount of internal friction and tendency to oxidize and form undesirable deposits. In consequence, lubricants for this purpose must be selected with the utmost care. This calls for an oil of the lightest viscosity compatible with temperature and load. Oils are available either compounded or containing special additives which will emulsify in con-

tact with moisture, and resist oxidation, so that protection of tool parts will be assured and valve sticking prevented. Resistance to foaming is another necessary characteristic, and extreme pressure properties are also required in many applications.

As air, the motivating power, is

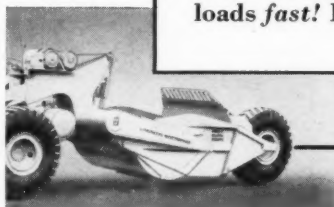
constantly being exhausted from the tool, the lubricant is being continually carried out with the exhaust. Thus the lubricant supply must be renewed regularly or else lubrication will be impaired. Since only a limited quantity of oil is carried in the air line oiler or in the internal reservoirs of

the average tool, frequent refilling is necessary. Larger reservoirs would require more metal, resulting in heavier tools. A pint to a quart of oil per eight-hour shift is average consumption. Use of too much oil may result in ignition, comparable to diesel combustion, which would contribute to

Why new 27-yd. B FULLPAK^{*} scraper is your best bet for low-cost dirtmoving

The all-new LeTourneau-Westinghouse 28 mph B Tournapull[®], with 27-yd. Fullpak scraper, gets big loads fast! Lower, wider, bigger...

this giant dirtmover delivers more pay-yards at lower-net-cost than any scraper on the market. That means more profits for you...



Job-proven design

The new low, wide B Fullpak scraper incorporates popular high-production features that have been job-proven in world-wide service—far over a year—on the modern 18-yd. C Fullpak. Shallow bowl design means Fullpak needs less force for lifting dirt... can apply more to cutting and pulling. Bowl bottom has only 1° rise when loading. With dirt flow nearly horizontal, quick-loading 27-yd. Fullpak packs full-capacity, low-void payloads fast!



Better boiling

Tailgate has curved top, to roll material up and forward into a high heap. Side-sheets sweep higher in center, to reduce spillage and deflect material into corners of apron and tailgate. High, deeply curved apron adds bonus dirt-capacity... carries a big part of load forward in its "belly", for better weight distribution, lower center of gravity, and improved stability and traction.



Faster loading... unloading

High apron lift (7'1" above blade) speeds loading and unloading. Smooth, streamlined side-arms and side-sheets prevent chunks from being trapped. Positive forward-ejection tailgate has plenty of power to force out sticky clay, mud, rocks—wipes bowl clean in a single pass.



90° turns

Electric steer, through geared kingpin, permits short 90° turns. New B Fullpak makes continuous 180° turn in area only 39'10" wide. Also, positive kingpin steer enables operator to swing prime-mover from side-to-side in soft ground to let drive wheels find better footing and "walk" unit out of mud or loose sand.



Better visibility

Cockpit is raised to give Tournapull operator clear view of blade, load, pusher. Road ahead is always in full view. Permits safe, high-speed cycles.



Get all the facts

Get full details on the new B Fullpak—and on other job-tested LeTourneau-Westinghouse earthmovers. See why they'll help you move dirt faster, easier, at lowest-net-cost-per-yard. Write or phone for all the facts.

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deposits in the tool. Fortunately, the design and construction of tool housings makes it virtually impossible for dirt and grit to enter the mechanism and contaminate the lubricant. Therefore, parts should function indefinitely if properly lubricated and carefully handled in service.

Use of a suitable air line oiler, located in the air hose a few feet back of the drill, is recommended by most manufacturers. These oilers introduce atomized oil into the air stream ahead of the drill. The oil-saturated air then reaches and lubricates all working parts. Oil reservoirs in these line oilers or atomizers are usually large enough to hold a sufficient amount of lubricant for one shift of drilling. They assure a constant, steady flow of oil, and should supplant intermittent lubri-

cation by oil reservoirs in the drill. Some operators use these atomizers in conjunction with the regular oil reservoirs in the drill; others depend on them exclusively to supply the required amount of lubricant.

Manufacturers recommend that the line oiler should never be more than 10 to 12 feet in back of the drill. This allows maximum atomization and minimum oil precipitation before the oil reaches the drill and makes for economy in the use of air hose. It is the usual practice to use oil-resistant hose between the line oiler and the rock drill. This is more expensive than regular hose, but has proved more economical.

Rock drills

Operation of the rock drill and

many other percussion tools involves both reciprocating and rotating motions. Each presents a different problem of frictional wear.

Moving parts wear similarly to those in a reciprocating engine. The problem of lubricating to prevent metallic wear between cylinder walls and pistons, however, is totally different. In the engine, temperatures are relatively high. During the expansion of air in a percussion tool, low temperatures are developed. Consequently, in air drill service, low temperature operations must be taken into account. Conversely, high temperatures may be met for a number of reasons—but primarily because air is often hot when it is delivered to the tool. High atmospheric temperatures accentuate this condition. Accordingly, a range of operating temperatures from 0 degrees F to 300 degrees F should be considered.

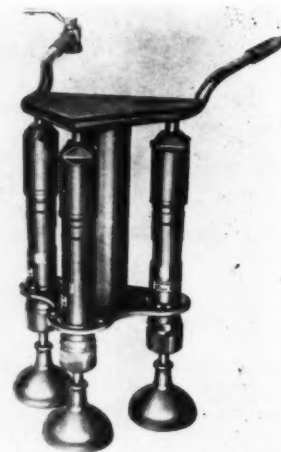
Types of drills

Rock drills for quarrying and mining vary according to the work to be done. The hammer type of drill, as used for bench work or secondary drilling, is applicable to down-hole work. It may be light enough for hand operation, or so heavy that it has to be mounted on a tripod or column for mining operations, or on a wagon for open work.

Drills designed for horizontal drilling are essential in mining and tunnel driving. They are generally known as drifters. A drill for upward drilling is called a stoper. The drifter drill is usually mounted on a column, or tripod. When mounted on a portable rig, it is known as a wagon drill. A jumbo is a portable unit mounted on wheels which can be run on rails. Several drills can be assembled on one unit. The device is used on tunnel construction and underground drifting where two or more drills can be run together advantageously.

Drilling wet or dry

Drilling may be either wet or dry, depending on the work being done. In tunnel operations, for example, where stopers and other drills are used, it is extremely important to reduce the amount of dust so as to improve work-



The Worthington Blue Brute Triplex backfill tamper, like other air tools, should be dismantled and cleaned periodically. This is particularly important if the tool has been out of use for some time.

ing conditions and reduce the personal hazard among the drill runners. This is done by wet drilling. That is, water is injected under pressure through the drill and into the hole being drilled. In addition, a small amount of exhaust air will pass out through the hollow drill. This exhaust air, along with the water, aids in removing drill cuttings from the hole.

A drill for wet drilling is constructed with a tube extending from the back head through the piston, and thence into the hollow drill. Water passes through this tube under pressure. Any leakage in the water system between the back and the hollow drill floods the working parts with water.



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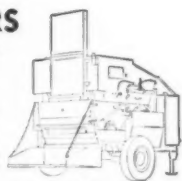
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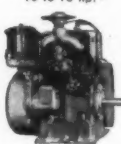


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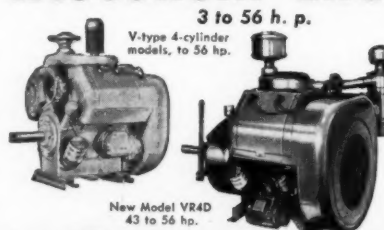


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Drills of the hammer type, designed for down-hole quarry or excavation work, very often use air alone, instead of water, for removal of cuttings. They usually operate on the surface and the problem of clean, fresh air, ventilation, and dust removal is not as important as in underground work.

Lubrication of drill parts that are commonly exposed to water is very important. These parts include the cylinder, the reciprocating piston, the valve mechanism, and the front head, which houses the chuck and rotative element. The rotative impulse may come either from the piston, or from an independent air motor located in the front head, depending on drill design. Where the piston gives the rotation, the chuck rotation nut is splined to the piston, with the piston in turn working on a rifle bar with a pawl ratchet attachment. When an independent motor is used, the motor is connected directly to the chuck parts, and the piston is a free floating member.

General lubrication and care

Many such tools are used under more or less severe operating conditions where water, dust, dirt, and heat are problems.

Water, for example, will tend to wash off the lubricating film from the wearing surfaces. During storage it can cause rust. For this reason, oils which will wet the metal parts and prevent contact with water are recommended. Such lubricants create an adhesive protective film which adequately resists the washing effects of water and sticks tenaciously to all wearing elements.

Means of lubrication

The means by which lubricants are applied or distributed has a marked effect upon the operation of air tools. Even the best of oils or greases may fail to do their work if they are used carelessly or in such a manner that they fail to reach all the wearing elements of the tools. More failures or complaints arise from insufficient lubrication than from any average operating condition. In some cases, ignorance is responsible; in others, neglect. Most failures take place because operators do not fully appreciate the necessity for lubricating their equipment.

Abrasive wear

Careless handling in the presence of dust and dirt—which may enter the tool along with the air—is always a potential cause of wear. Usually, it is easy to prevent abrasive foreign matter from entering the tool itself via the air line if an air filter or dirt trap is installed and if the hose is in good condition. When the tool is not in actual operation, care in handling will prevent dirt entering from other sources. If the tool is stored in an oil bath or rested in a position or location free from dirt, it should function satisfactorily for an indefinite period.

Clean air should always be used. This will depend, however, upon the location of the compressor, its air intake, whether or not air filters are installed, and the cleanliness of the

inter-coolers, pipelines, and air hose. Furthermore, if any of the parts are rusted on the interior surfaces, particles of rust may flake off and be carried along by the air.

Particles of rubber from the air hose and gaskets, which would interfere with the free operation of the tool mechanisms, may be kept out by a strainer in the inlet pipe. Some builders include a strainer or filter in the tool itself. Such strainers should effectively remove the greater part of any solid foreign matter and protect the working mechanisms of the tool.

The strainer must be cleaned at frequent and regular intervals.

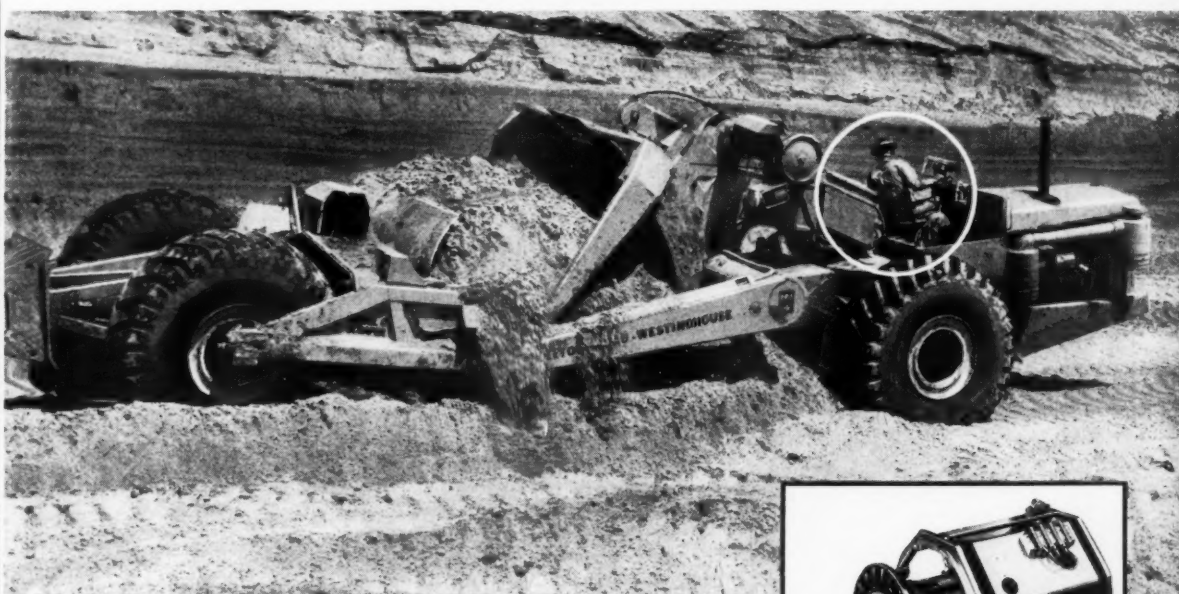
Automatic lubrication by means of air line oilers or atomizers mechanically delivers the requisite amount of clean oil to the air lines. Lubricators of this type prevent contamination of the oil from exterior sources. Naturally, fresh oil charged to lubricators should be clean, and this can be assured if containers used on the job are of the closed-cover type.

In the absence of automatic means of lubrication, tools must be oiled periodically by hand. There will be

more possibility of accidental entry of dust or dirt occurring under such conditions. In some localities the atmosphere will often be laden with dust, and the lubricants should be stored and handled with even greater care. They should be kept in closed containers and placed in a handy location to eliminate loss of time when lubricating.

Rust protection

Oil is required to lubricate those parts of the air tool touched by compressed air. This means that if the



Fast, accurate work... at lower cost with *electric control* Tournapulls

One reason modern LeTourneau-Westinghouse Tournapulls are so fast-working is because they are controlled with the smooth, clean, instant power of electricity. With fast, dependable electric controls, your operator does more work... higher quality work... and maintenance costs are lower. Here's why:

Exclusive fingertip controls on dash

On all L-W Tournapulls, operator steers... operates scraper bowl, apron, and tailgate... just by moving small electric control switches on dash. When switch is pressed, point-of-action motor is immediately activated. Action stops the moment switch is released... or stops automatically when pre-set limit of travel is reached. Because control is so easy, operator works faster... more accurately... with less fatigue.

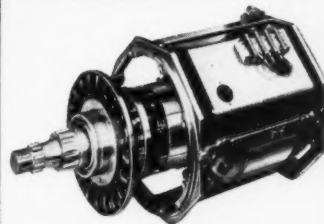
Simple, trouble-free electrical system

A heavy-duty AC generator—mounted in line with unit's diesel engine—supplies power for steering and control motors. Pressing

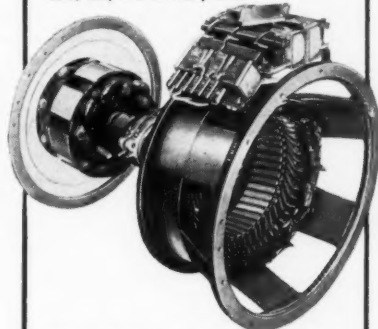
dash-control switch sends current through flexible insulated wires to weatherproof, high-torque, point-of-action motors. Spring-loaded brakes are released, and motor turns at top speed—within 1/4 second. Electric power is converted, through gears and short cable, to desired action at the apron, tailgate, or bowl hoist... and through gears to kingpin steering control. Operating electricity is generated only when point-of-action motors are in use. There's no continuous drag on the engine, to rob horsepower and add to fuel costs.

Low maintenance costs

More than 19 years of experience building more than 13,000 self-propelled scrapers—in service all over the world—proves the merits of this exclusive L-W electric-control system. Eliminated are troublesome repairs and adjustments common to hydraulic or mechanical systems. With Tournapulls, you convert time saved on downtime and maintenance to production time. Also, Tournapull® scrapers normally use only about half the lubrication of competitive self-propelled scrapers... further reducing operating costs.



Weatherproof motors are "squirrel-cage" type, operating on AC current. Simple, compact—motors consist of only two fool-proof parts: rotor and stator. They always give same, swift action—no matter how cold, hot, wet or dusty it is.



300-volt, 3-phase, AC generator—bolted to prime-mover's engine flywheel—supplies power for steering and control motors. Transmission of power through electric cables eliminates problems of lubrication, breakage, leakage, high-pressures, and clogging of hydraulic and mechanical control systems. Generator may also be used as an emergency source of electric power.

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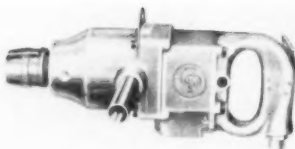
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air is moist (as most compressed air is), rusting may occur if the oil does not contain materials to prevent it. These materials cause the lubricant to wet the steel surfaces preferentially in the presence of moisture.

It is quite true that highly refined straight mineral oils are capable of providing adequate lubrication and protection of tools wherever dry air is available, but absolute dryness is never attainable. If the air lines are laid out so that drainage of condensed moisture to traps is assured, if these traps are drained regularly, if effective water filters are used, and if an after-cooler is installed at the compressor—then it is logical to assume that moisture-free air is being delivered to the tool. Only under these ideal conditions could a straight min-



Portable air tools, like this Chicago Pneumatic air impact wrench, are exposed to great extremes of operating conditions. Proper lubrication and cleaning will keep the tool in condition for peak performance.

eral oil be expected to provide satisfactory service.

Since ideal conditions do not exist at all times, complete protection against rusting can be expected only by use of a lubricant which will provide rust protection. This type of lubricant is also excellent insurance

against rusting when air tools are not in use or must be stored for any length of time.

Extreme pressure and stability

Fortunately, extreme pressure conditions do not prevail in portable air tools as in rock drills, so extreme pressure characteristics, or EP, are not necessary in small tool lubricants. Extreme pressure properties are essential in a rock drill lubricant to protect rifle bars, nuts, and other moving parts from wear under severe load conditions—as, for instance, when the drill tends to stick in very hard rock or when deep holes are being drilled.

In lubricating small tools it is important to consider the stability of the lubricant—be it an oil or grease.

Remember that such tools are precision mechanisms designed with close tolerances and intended to operate at high speeds. Lubricants with suitable oxidation stability prevent the accumulations of deposits on moving parts.

Lubrication service

Air tool engineers suggest placing a piece of white paper across the exhaust as a test for re-oiling. As long as oil droplets appear on the paper, oil is passing through the tool.

A study of operating conditions, the length of time the tool is used, and the capacity of the oiler should furnish data from which the frequency of re-lubrication can be determined. The resultant schedule should be followed carefully. Lack of lubrication can very soon cause the vanes of a rotary tool to warp, burn, chip, and crack. It is true that new vanes are inexpensive and can be readily renewed, but in the meantime the tool is out of service. In the percussive-type tool, scoring of the contact surfaces will result.

Conditioning the air

Transmission of air from the compressor to the air tool involves a number of steps—compressor to pipe line to air hose to tool. The air hose is most important. If it is not properly cared for, it can develop leaks, become frayed, and accumulate condensed moisture. Then production suffers.

Care of the air transmission system can be summarized this way:

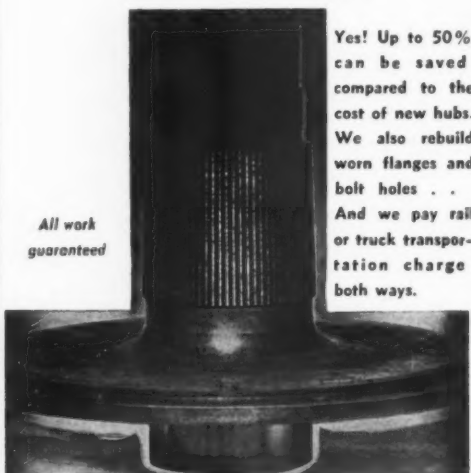
1. Blow out the line before attaching the tool. This will help remove water, rust and foreign particles.
2. Use short, large-diameter air lines to avoid excessive pressure loss.
3. Restricted connections reduce flow of air. Remove them if possible.
4. Do not connect an auxiliary air line to the bottom of a tee. Water may be trapped inside.
5. The check valve from line to tool should be wide open and free from any deposit or restriction.
6. Inspect air lines regularly so that they can be kept in good condition.
7. Use high quality hose, built with a lining which will resist the deteriorating effect of oil and heat.
8. Cool the air before using it. An after-cooler installed at the compressor is an excellent investment. It is effective in removing heat, oil and water from the air.

Tool maintenance

Even with the best of care and lubrication, air tools should be dismantled and cleaned periodically. Preventive maintenance pays off in better tool performance and longer tool life.

Cleaning can be accomplished best by using a solvent such as kerosene or Stoddard Solvent. Usually, these will cut any gummy residues and enable them to be washed out. Where greases are used, more care must be exercised in cleaning out all traces of used lubricant, and the bearings

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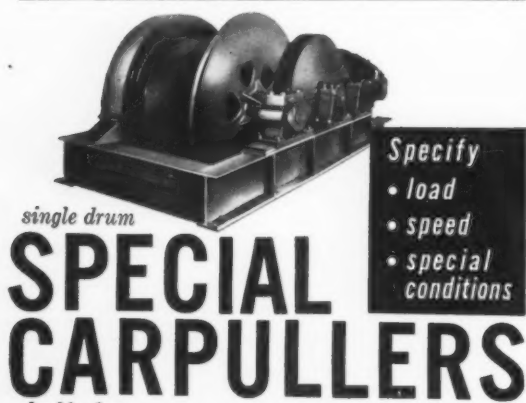
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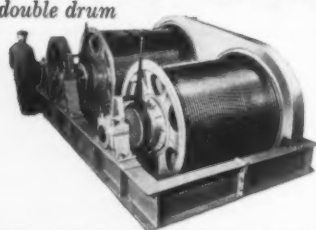
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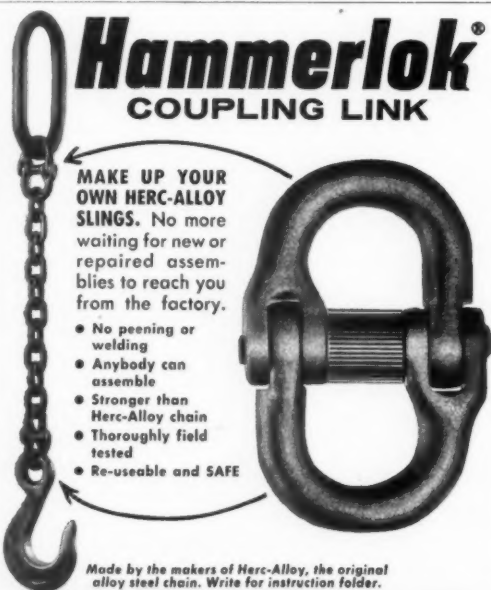
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should be properly dried before re-lubricating.

Small percussive-type tools can be effectively freed of non-lubricating accumulations and old lubricants by submerging them in a bath of a suitable cleaning fluid for a few hours, then blowing out the tools thoroughly with clean air. Large tools, however, may require complete disassembling when cleaning is necessary. If the tool has been laid up for any length of time, the parts should be soaked in solvent to soften or cut any gummy matter and make it easy to wash off other foreign material which may not be entirely soluble. After re-assembly and prior to reuse, the tools should be blown out and thoroughly lubricated.

When tools are not in use, store them in a bath of light rust-preventive oil.

THE END

Gilkison manages sales division of Gates Rubber

Mark T. Gilkison has been appointed manager of the Industrial Sales Division, Gates Rubber Co., Denver, Colo. Formerly assistant manager of the division, he replaces L. L. Carroll who is taking sales duties for the company on the West Coast.

Gilkison will head the entire Gates industrial sales organization which includes all original equipment manufacturers and the industrial replacement market through distributors. A member of the firm since 1939, Gilkison has held such positions as market development engineer and hose sales manager.

Bendix promotes Doroff to national sales manager

Gilbert D. Doroff has been promoted to the post of national sales manager, mobile products, for Bendix Radio Division of Bendix Aviation Corp., Baltimore, Md. He will direct national sales of two-way mobile radio communication systems used by contractors and transit-mix operators.

Replacing Doroff as Midwest regional manager for Bendix two-way mobile radio products is Frank R. Viafora, who will work out of the company's Chicago office.

Black & Decker opens service, sales branch

A new factory service and sales branch has been opened at 33 Webster St., Hartford, Conn., by the Black & Decker Mfg. Co., Towson, Md. The branch will serve users from Springfield, Mass., to New Haven, Conn.

John T. Tierney is the branch service manager.

Highway Trailer appoints

John H. Jones has been appointed advertising and promotion manager of Highway Trailer Co., Edgerton, Wis. Jones was formerly news editor for radio station WPDQ, Jacksonville, Fla., director of public relations for the Jacksonville Community Chest, and with Dun & Bradstreet, Inc., Atlanta, Ga.

Gar Wood to build plant

Gar Wood Industries, Inc., Wayne, Mich., plans to operate a new plant in Exeter, Pa. The plant will undertake the production of Gar Wood-St. Paul dump truck bodies and will improve distribution to the company's Eastern distributor network.

Flex-O-Lite appoints

New sales manager for the Flex-O-Lite Mfg. Corp., St. Louis, Mo., is Charles R. Dernbach, formerly with

Grote Mfg. Co. and Allis-Chalmers Mfg. Co. As sales manager, Dernbach will do promotion work for high refractive index glass beads for warning and guide signs.

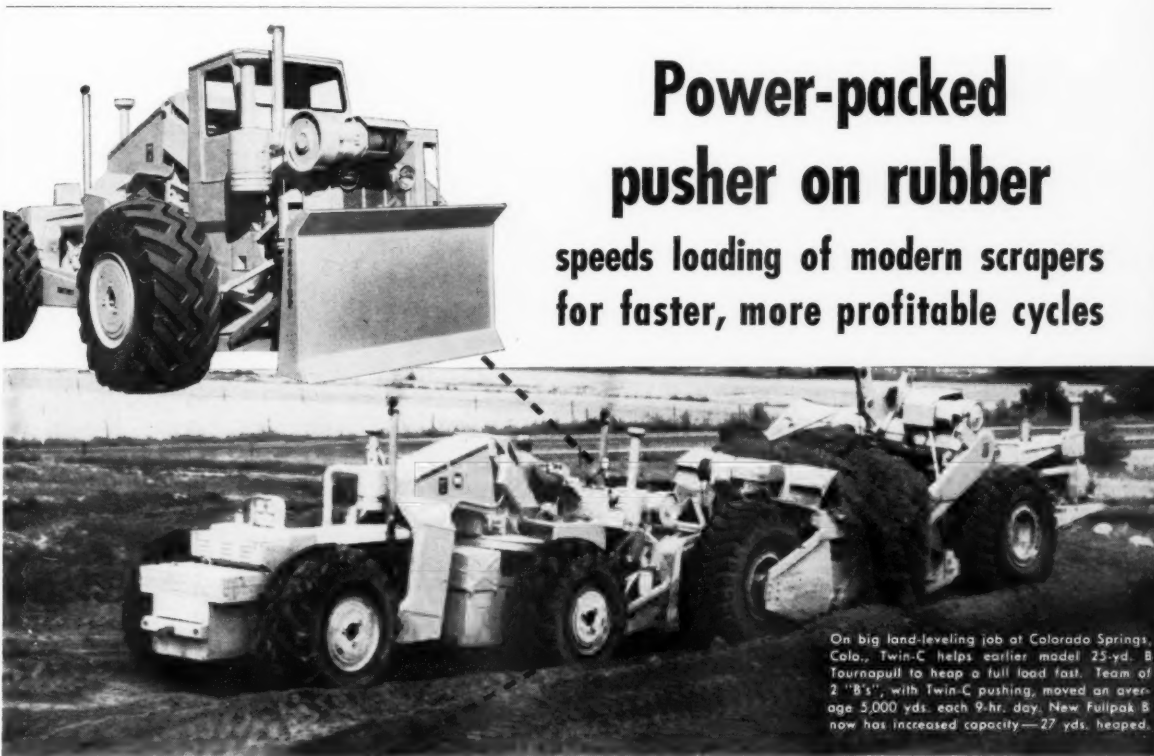
Stone appointed B-E sales representative

Small-excavator sales representative for the Bucyrus-Erie Co., South Milwaukee, Wis., is William R. Stone. He will work out of the firm's Chicago, Ill., office. Prior to joining Bucyrus-Erie, Stone was a sales engi-

neer for B-E's Hawaiian distributor, Theo. H. Davies & Co., Ltd., Honolulu.

Galion Allsteel names regional sales manager

Frank Ferren has been named Midwestern regional sales manager for Galion Allsteel Body Co., Galion, Ohio. In his new post, he will supervise the sale of Galion Allsteel dump bodies, hoists, and hydraulic tailgates in states of Illinois, Indiana, Ohio, Michigan, Wisconsin, and West Virginia.



On big land-leveling job at Colorado Springs, Colo., Twin-C helps earlier model 25-yd. B Tournapull to heap a full load fast. Team of 2 "B"s, with Twin-C pushing, moved an average 5,000 yds. each 9-hr. day. New Fullpak B now has increased capacity—27 yds. heaped.

Now you can add speed to power in your loading operation... cut cycle time for more payloads per hour. Just watch the LeTourneau-Westinghouse "Twin-C"—a 420 hp pusher with matched drive on all 4 wheels. Here is a giant pusher with speed—up to 20 mph, plus power—up to 65,000 lbs. of drawbar pull by actual test.

Twin-C positions fast for push... makes immediate, sure contact. It helps scraper get full load at a speed 20% or more over the rate possible with crawlers. Then, at end of push, Twin-C gives scraper final high-acceleration boost out of cut, so scraper operator can shift directly into higher haul gear. It's another cycle-time-saver that only rubber-tired speed can provide!

Synchronized engines, transmissions

A single throttle controls both synchronized engines of Twin-C. De-

pendable constant-mesh transmissions with torque converters automatically provide best power-speed ratio for all requirements. Each pair of drive wheels is controlled by its own exclusive L-W power-transfer differential. When one wheel starts to spin, wheel on opposite side gets power boost (up to 80% of total).

In spite of its vast power and size, the big Twin-C is highly maneuverable. It has Tournapull's wagon-type power-steer—through large ring gear and pinion in yoke connection. Machine turns in short radius, can position fast for next push. You'll find this pusher makes earlier contact with scraper... often while still in turn. When steering motor brake is released, rear unit automatically swings into line with front. This is just one way the Twin-C operator can chop valuable seconds off loading cycle!

2½' wide tires grip and float

All tires on Twin-C are big, low-pressure, wide-base type—29.5 x 29, 22-ply rating. Tire lugs grip a wide area, provide excellent traction.

Fullpak, Twin-C—Trademark; Tournapull—Trademark Reg. U.S. Pat. Off. TW-1407-DC-1

(Hydroflation adds an extra 5 tons weight for even better ground grip.) Each tire gives you 400 sq. in. of contact area. Low inflation pressures "float" pusher over loose, uneven ground.

Good view of cut, easy controls

Operator of Twin-C has much better view of his work than operator of a crawler pusher. Seat and controls are up high and forward, on the front unit. Lining machine up for push, operator has full view of scraper push-block—right up to moment of contact.

With exclusive fingertip control, he adjusts height of his own big power-operated push-plate for best contact. Once push starts, push-plate "floats", maintaining solid scraper contact automatically.

Add Twin-C's push-power to your fleet

Get all the facts on how 420 hp Twin-C can raise the production of your rubber-tired scraper fleet. Ask for particulars and specifications.



LETOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

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The lighter side



Lou Perini has a reason for smiling these days. His Milwaukee Braves took their first World Series championship in four out of seven games last month.

Congratulations to Lou Perini, owner of the Milwaukee Braves baseball team, for winning his first World Series championship! In taking four games of the seven-game series, likable Lou and his Beer-City boys nosed out another contractor—Del Webb, a

co-owner of the New York Yankees. Still another construction man was itching to get with the big leagues this past season. Lou Wolfson, president of Merritt-Chapman & Scott Corp., was bidding to buy the Brooklyn Dodgers before they up and jumped to Los Angeles.

MC&S, incidentally, has just won its seventh "Oscar" trophy for the best annual financial report of firms in the construction service industry.

Dravo Corp. and Raymond Concrete Pile Co. placed second and third, respectively, in this particular field. Approximately 5,000 annual reports were considered in a survey to determine "Best-of-Industry" awards in 100 industrial classifications.

On the giving side of an award is Victor Frenkil, president of Baltimore Contractors, Inc., a Maryland builder. For the past seven years, Vic has donated a \$500 national television play script award to encourage unrecognized creative talent, and to provide some material aid for the winners in advancing their careers. Those entering the contest are students in colleges offering courses in radio or television. Entries are judged on universality of theme and originality of content. The winning script is produced over a Baltimore TV station.

With the opening of the \$100 million Mackinac Straits Bridge, the Michigan State Highway Department is retiring the fleet of ferry boats it has operated since 1923. In that year the State Highway Department took over the ferry line because of public discontent with the irregular service offered by privately-operated railroad ferries. The five ships of the fleet go into mothballs awaiting final disposition by the Highway Department. This year an all-time record was set when over 900,000 cars were transported across the Straits by ferry.

In acquiring highway right-of-way, a state is bound to make someone unhappy. New York hopes to minimize this unhappiness by hiring ten public relations experts to hear landowners' complaints, evaluate them, and recommend changes, if possible, to its Department of Public Works engineers. ROW engineers, usually working under pressure, have not the time to listen to the many problems of a community and its individual property holders, and consequently have been accused of acting arbitrarily. Now it is up to the PR men to sugar coat an unpleasant situation that is bound to arise when the state wants to take a choice bit of farmland or to by-pass a sensitive community.

On the plans for a new school in Illinois, someone had written "sidewalks in red" as a note to the draftsman for so indicating their location. The contractor, however, took the instructions literally, added color to his mix, and laid the walks accordingly. Probably on the theory that while the little red schoolhouse is a thing of the past, there is no reason why the surrounding walks cannot be made to brighten up the landscape.

Motor grader blades have turned up a lot of dirt in their day, but one operator, working on the new Long Is-

CONTRACTORS AND ENGINEERS



Barge Mounted Wiley Whirley cranes at work on the Harlem River on a 1300 lineal foot bulkhead job.

WILEY...

for dependable
**ENGINEERING &
WORKMANSHIP...**

George W. Rogers, president of the George W. Rogers Construction Company, thinks very highly of the full revolving steam Wiley Whirleys shown above. He said they are ideal for his heavy construction work because "They are fast and hefty . . . and the maintenance is very nominal indeed."

Mr. Rogers said that the best indication of his feeling about these cranes is the fact that they have another one on order.

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EERS

land Expressway in Queens, New York, recently uncovered \$30,000 worth of jewelry in a lady's handbag. The prize wasn't his long though. Seems that the bag had been dropped from a car in which the wife of a Latin-American consul general was riding, and the jewels were restored to their owner. If that had been somebody's upper plate, shaken loose on a bumpy detour, it would probably be lost forever.

Bauer director of new Allis-Chalmers division

P. F. Bauer, former manager of the Industrial Equipment Division, has been made managing director of Allis-Chalmers International, a new major operating division of Allis-Chalmers Mfg. Co., Milwaukee, Wis. Floyd J. Mischke, former Tractor Group export manager, and Paul Dietz, former Industries Group manager, are the new associate directors of sales for the new division.

The new division will be responsible for all manufacturing, engineering, and sales operations and activities outside of the United States and Canada. Manufacturing operations include plants in Essendine, England, and New Castle, Australia.

Allis-Chalmers International, recently organized to handle all manufacturing, engineering, and sales operations outside of the United States and Canada, has appointed Warren J. Holmes manager of sales. Holmes has been associated with the export department of the Allis-Chalmers Industries Group.

Jones named general manager of P&H machines

R. P. Jones has been appointed general manager of the lines of Soil Stabilizer and Sierra Loader units manufactured by the Harnischfeger Corp., Milwaukee, Wis. He will be responsible for sales, engineering, production, and service of both lines.

During Jones' 14 years with the company he has been concerned with the development of the P&H Soil Stabilizer. Prior to that he was with the Ohio State Highway Department and the Portland Cement Association.

Thew Shovel promotes

D. L. Douglass has been promoted to director of parts and service for Thew Shovel Co., Lorain, Ohio. He started with Thew in December, 1955, as parts sales manager, and was made manager of the parts division the first of this year.

Carrol G. Turk assumes the position of assistant to Douglass. R. G. Thibaut, who has been manager of the service department for the past four years, continues as the active head in charge of detailed operations.

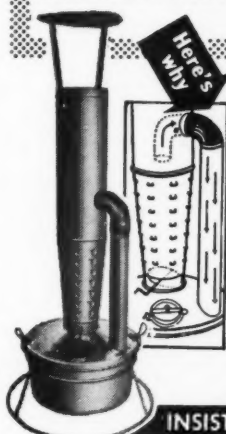


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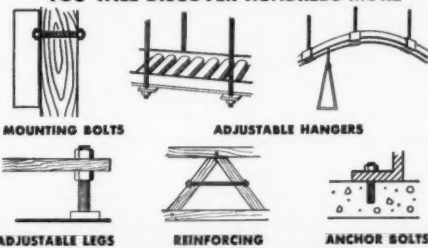
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Surveying Washington

On schedule is the word from top federal officials about the federal-aid construction program, and they cited tangible grounds for their statement.

C. D. Curtiss, U. S. public roads commissioner, points out that as of September 1—some 14 months after enactment of the highway law—the total of federal funds represented by advertised contracts and obligated money on the primary, secondary,

and interstate systems amounts to \$2.6 billion. On the interstate system alone, construction contracts of more than \$840 million in federal funds have been awarded for 1,947 miles of highways. This includes contracts for 1,681 bridges.

When you count contracts soon to start, the interstate mileage covered is 2,151.

Curtiss discloses that 36 states had

committed all of their 1957 funds by September 1 and were moving ahead on their 1958 monies. The federal apportionment for fiscal 1958 was \$2.55 billion and that for fiscal 1959, beginning next July 1, is \$2.87 billion.

The 1959 sum, announced in August, was apportioned far enough in advance to insure uninterrupted progress of the road program. The allotment includes \$2 billion for the inter-

state system, bringing the balance of uncommitted federal funds for work on the system to \$2.5 billion.

Interstate routing is also moving at a fast pace. So far, Curtiss says, specific and detailed locations have been chosen by the states and approved by the BPR for over 80 per cent of the system's mileage. A big step in this direction was taken when 2,100 miles of toll roads in 15 states were included as part of the system by highway administrator Bertram Tallamy on the recommendation of state highway departments. The incorporated roads embrace 1,837 miles already in operation, including all or major sections of most of the nation's principal toll arteries.

However, only eight miles of the New Jersey Turnpike are included, and the West Virginia pike and northeast extension of the Pennsylvania pike are excluded completely because they do not lie along the general location lines of the interstate system.

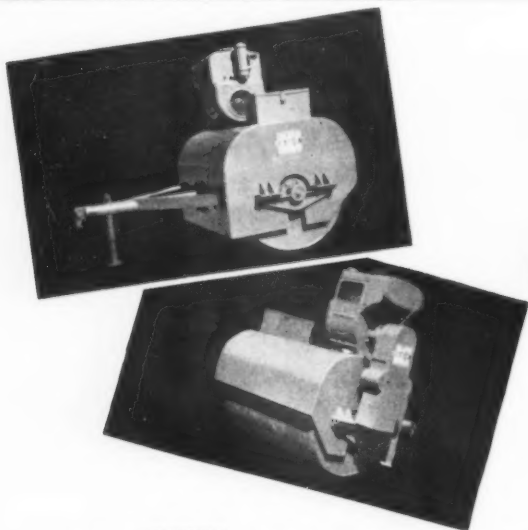
The toll status of the included mileage will not be affected, but federal funds cannot be used for its improvement under terms of the Highway Act. Still pending is the question of whether states shall be federally reimbursed for this mileage. The decision is up to Congress, which will act on the basis of a reimbursement cost report being made by the BPR. The report must be in the hands of the lawmakers by next January.

While gratified at progress made thus far, federal officials are not minimizing the problems that lie ahead. Originally, there was talk about completing the highway program in 13 years, but this estimate appears too optimistic. Tallamy says it now looks as though it will take 16 years to finish the gigantic task of making the highway network able to cope with anticipated future traffic loads.

The engineering shortage is "critical," Tallamy admits, but it is being eased through the use of electronic digital computers, aerial photography and "other methods which have multiplied the amount of engineering we can get per engineer."

"For example," he continues, "about a year ago it took a college-trained engineer about 30 weeks to compute earth removal for 100 miles of highway. Today he can do the job in a week using the electronic computer." Just how much time electronic computers will be able to save highway and other engineers in the future is anybody's guess. But it will be a considerable amount.

How much will inflation add to the cost of completing the highway program? Although this question of questions cannot be answered precisely, a



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Campbell cabs are sturdily constructed of heavy-gauge steel with full visibility all around through rubber-mounted safety glass windshield, windows and skylight. Each cab is custom built for a specific "PAYLOADER" model, so that it is easily attached, snug fitting.

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Rear section of the Campbell "Slide-away" Cab slides back on ball bearing rollers for easy entry and exit. Rear window swings back to provide full ventilation in hot weather . . . or the section can be removed completely.



CAMPBELL DETACHABLE CAB CO.

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by HUBERT KELLEY, JR.

strong clue will be provided in January. That is the deadline for the Secretary of Commerce to submit to Congress a detailed estimate of completion costs, based on experience so far. Apportionments for fiscal 1960, 1961, and 1962 will be guided by the figures presented.

There is no doubt the program's price tag will be revised upwards—highway construction costs have been rising with everything else. The extent of the rise, which could have significant impact on the highway project, is a subject of anxious concern to both state and federal officials.

Corruption on the part of some union chiefs has spurred the administration to prepare legislation to revise the Taft-Hartley Act next year. Secretary of Labor James P. Mitchell says the law is basically sound but that there is a definite need for a review of labor-management legislation.

It is virtually certain that three changes in the Taft-Hartley Act affecting the construction industry will be included in the proposed revision program. Legislation to carry out the amendments were sent to Capitol Hill by the administration early this year but languished.

The first legislative proposal would amend Taft-Hartley to make it clear that multi-employer groups, such as employer associations, may engage in collective bargaining to the same extent as individual employers. The amendment would apply chiefly to the construction industry, where multi-employer bargaining is quite extensive.

Mitchell believes multi-employer bargaining is advantageous to both employer and employee in stabilizing wages and working conditions. In addition, he says, it equalizes bargaining power between boss and worker.

Multi-employer bargaining has been recognized by the National Labor Relations Board but has never received express Congressional sanction. The amendment would repair this oversight.

The second legislative recommendation would authorize the NLRB to certify unions acting in behalf of construction workers as exclusive bargaining representatives without a prior election. However, such certification would have to be preceded by a joint employer-union petition asserting that the employer presently recognizes the union as a bargaining agent and that a collective bargaining agreement between them exists.

A certification would not be issued if there was no history of a collective bargaining relationship between employer and union, or if the NLRB found that a majority of the workers

did not choose the union as their agent.

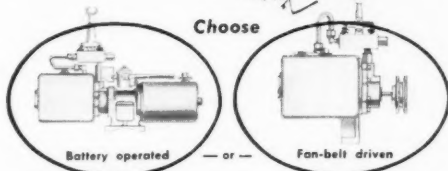
This amendment, the Labor Department says, would provide for the fact that present NLRB procedures are designed for employment relationships of some permanence, whereas employment in the construction industry is casual and intermittent.

The third recommendation would

clarify the legality, under Taft-Hartley, of employer contributions to apprenticeship and training trust funds in the construction industry which are jointly administered by employer and union. This proposal takes cognizance of the fact that employment relationships and hiring practices in construction are unique, with employee training being a joint employer-union responsibility.

Any tampering with Taft-Hartley usually produces a political red flag, especially in an election year. However, these three proposals have the advantage of being endorsed unanimously by an advisory committee composed of representatives of both management and labor in the building and construction industry. For this reason, they may get serious consideration in Congress in 1958.

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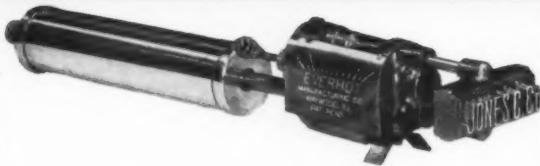
to the reverse side of the bulldozer moldboard, and many makes of angle-blades. As the operator backs up, he simply drops the blade and the rippers tear into the ground, making use of what is usually wasted reverse motion.

The mold removed, a completed 50-ton section is ready to be picked up by a huge crane. Pipe, cast with a mix that contains Rocklite, weighs one-third less than pipe of conventional concrete.



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Pipe-laying costs cut by one-third new

Lightweight, reinforced - concrete pipe, that did not require the building and using of special pipe-laying equipment, cut construction costs at the Southern California Edison Co.'s new Huntington Beach steam generating plant. The new multimillion-dollar plant, located just off U. S. Highway 101, has two pipelines that reach over 1,800 feet into the Pacific Ocean to circulate a maximum 352,000 gpm of sea water completely through the generating plant's large circulating system.

The two pipelines—one for intake and the other for discharge—are made up of 16-foot-long sections, each section having a 14-foot inside diameter. There are 230 pipe sections used in the job, each weighing 50 tons. Ordinarily, concrete pipe sections of this size would weigh approximately 75 tons, but because of the lightweight concrete aggregate, the weight was reduced by one third, and approximately one third of the cost

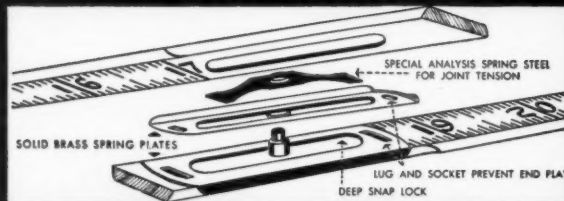
of laying the pipe was cut.

Pipe design

The steam generating plant was designed by the Bechtel Corp., San Francisco, Calif., in collaboration with the engineering department of the Southern California Edison Co. Edison's engineers developed the idea of using lightweight concrete pipe on this job and turned over the task of developing a pipe for the cooling system to the American Pipe & Construction Co., South Gate, Calif. Edison suggested a mix using Rocklite, a coated expanded shale, structural-grade lightweight aggregate. Finally, after casting smaller-diameter lightweight-concrete test sections, American Pipe developed a suitable mix and manufacturing procedure that would produce a pipe meeting the specifications of the D load and static head tests.

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SAGINAW, MICHIGAN**

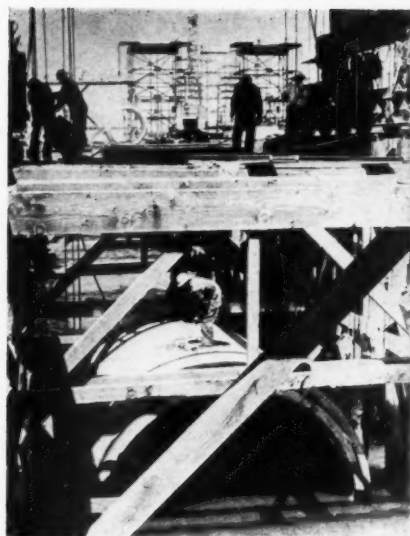
BETTER MEASURE WITH LUFKIN

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CONTRACTORS AND ENGINEERS



Four 16-foot-long sections of pipe are stockpiled at the beginning of the timber trestle. While the crane in the foreground gets ready to pick up a pipe section, another crane, background, picks up sand to be used as backfill around a section already in position.



Cables from a special hoist built by the Macco Corp. lower the pipe into the ocean. Once in the water, the 50-ton pipe dropped to about 27 tons handling weight.

one-the new steam generating plant

and II, it was found that this particular concrete would withstand the erosive effects of sea water and possess the required permeability characteristics. In addition, American Pipe found the mix satisfied the other design criteria for the subaqueous pipe—an ultimate 28-day compressive strength of 4,000 psi; a density of the cured concrete not to exceed 100 pounds per cubic foot; and a drying shrinkage not to exceed 0.05 per cent.

American Pipe worked out new designs for the pipe, and also cast the pipe with a special reinforcing steel cage. Special bracket fittings for the laying cranes had to be fitted, and there were modifications of cage and handling equipment.

Pipe-laying operations

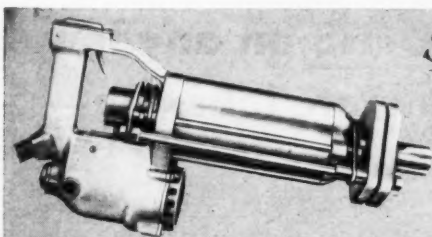
Many problems were encountered by the Macco Corp., Paramount, Calif., contractor for laying the pipeline. Their first job was building a

trestle out over the water for cranes big enough to handle the 14-foot-diameter pipe. Then, excavation problems proved difficult. Ocean surges complicated the work of laying the pipe beneath the ocean floor. After the pipe was lowered into the water and secured in position, sand backfill was placed around it in order to bury the installation 5 to 8 feet below the level of the ocean floor.

Once the pipe was submerged in the water, the pipe's handling weight dropped from 50 tons to less than 27 tons, making positioning and handling easier.

The new steam generating plant is part of a long-range program which has been undertaken to keep up with the growth and development of the Los Angeles area, and the corresponding increased demand for electrical power. Ultimately, the new plant will be capable of generating 1 million kw of electricity for the Southern California area.

THE END



SYNTRON ELECTRIC HAMMER DRILLS

...the only Electric Hammers available with automatic, self-rotating drill bit.

SYNTRON Electric Hammer Drills are designed for fast, easy drilling in concrete. Constructed for long, dependable service, employing the electromagnetic principle, they will maintain their efficiency day after day with a minimum of maintenance. SYNTRON'S exclusive automatic rotation of drilling bits provides ease of handling in any position. Available in sizes to meet every drilling need. Capacities from 3/8" to 2" diameter.

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THE TOUGHEST, MOST ECONOMICAL SEALER AVAILABLE for AIRFIELD PAVING JOINTS

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Steel work completed for Connecticut toll road bridge

Steel work on the 3,769-foot Quinnipiac River Bridge, New Haven, Conn., is scheduled to be completed this fall. Constructed for the Connecticut Turnpike Commission, the bridge is the longest on the entire

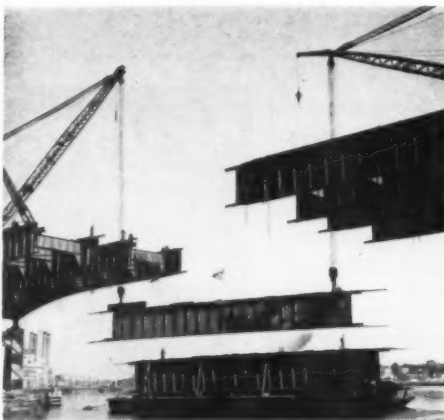
192-mile toll road connecting the metropolitan areas of New York and Boston, Mass.

Girders for the spans were fabricated at the Pottstown and Rankin, Pa., works of the general contractor, Bethlehem Steel Co., Bethlehem, Pa., and were shipped to New Haven by rail and water. Because of the lengths of the girders, some required three railroad flat cars for shipping by special train moving at very slow speeds during daylight hours only. The longest section was 126 feet.

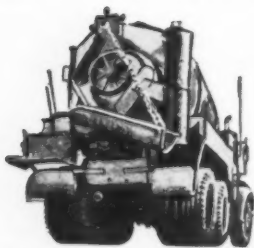
Working from the east side and using a 115-ton capacity traveler, Bethlehem crews hoisted haunch girder sections into position. Each section measured approximately 120 feet long and weighed 60 tons. Each main section was hoisted in two pieces, a top and bottom, and joined together 65 feet above the channel. A 387-foot continuous plate girder span forms the center of the bridge. Depth of the center span varies from 9 feet 6½ inches to 21 feet 6 inches.

The \$10½ million bridge contains approximately 11,400 tons of steel in the superstructure, 7,500 feet of steel bridge railing, and about 10,500 cubic yards of concrete deck.

In the early stage of the job, 11 cofferdams for various piers and abutments were erected for the Quinnipiac River Bridge which will be part of the Greenwich Killingsly Expressway, one of the projects connected with the Connecticut Turnpike. More than 770 pieces of steel sheet piling, rented from the L. B. Foster Co., went into the cofferdams.



The gap in the Quinnipiac River Bridge's 387-foot central main plate girder span is being closed by the first of four girders, each measuring about 108 feet and weighing 89 tons. The steel superstructure is being fabricated and erected by Bethlehem Steel Co. for the 3,769-foot bridge.



**RCA 2-way radio
keeps your trucks
on the job!**



**RCA "Mobile-Shop"
keeps your radios
on the job!**

Just get the picture of this whole new deal on 2-way radio service! All you do is call RCA Mobile Communications Service. An RCA "Mobile-Shop" comes right to the spot, wherever your trucks are based . . . lost travel time for your trucks is all but out of the picture.

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Ellicott Machine buys American Steel Dredge

The floating dredge business of the American Steel Dredge Division, American Hoist & Derrick Co., Fort Wayne, Ind., has been acquired by the Ellicott Machine Corp., Baltimore,

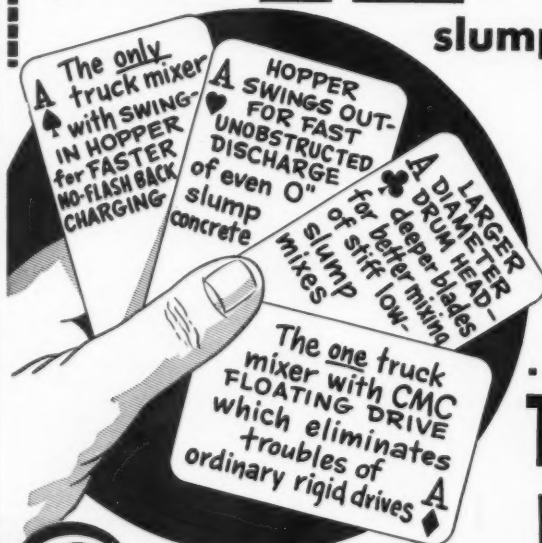
Md. Under the agreement, all manufacturing rights, patents, drawings, engineering data, and patterns of American Steel Dredge for the design, manufacture, and sale of dredges and dredging equipment have become the property of Ellicott.

Ellicott will supply repair and re-

placement parts for all dredges built by American Steel Dredge.

There are enough roads and streets in Pennsylvania to encircle the globe at the equator four times. The largest chunk of the 107,497.56 miles is 45,213.57 miles of township roads.

you've a pat hand for PROFITS on any low slump concrete jobs, too—



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Truck Engine Drive Models 5 to 7 yds. mixing capacity.
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CONSTRUCTION MACHINERY CO., WATERLOO, IOWA

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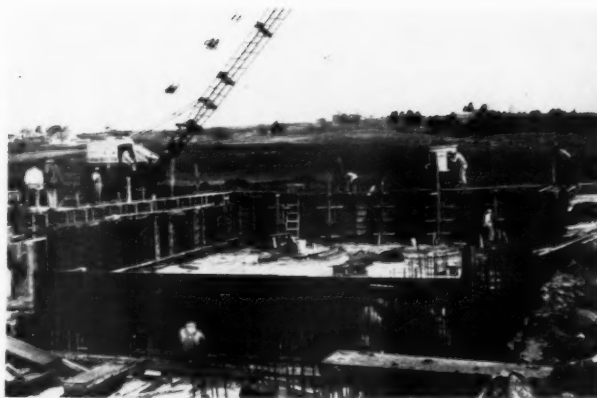
Contractor races time on big power plant pour

A marathon pour of 530 yards of concrete in one 5½-hour period put construction of the \$10 million Blue Valley Station of the Independence, Mo., power plant way out in front as a siege of wet, windy weather struck.

This big pour consisted of floor slabs and a section of the cooling tower basin. Though some of the concrete was supplied by ready-mix trucks, most of it was placed by a Bucyrus-Erie Model 22-B crane alternating two ¾-yard concrete buckets as it swung the concrete into place. The contractor on this phase of the work is Sharp Bros. Contracting Co.,

Kansas City, Mo.

Part of the swiftness of the concrete-pouring operations is credited to the 8,000 square feet of Symons high-strength prefabricated forms being used to pour a 40,000-square-foot area. These are being used because of the variety of shapes required by the facility. Much of the concrete is in thick slabs and pedestal bases with wall thicknesses varying from 6 to 84 inches. Forms are also being used on the cooling tower basin which has pilasters, measuring 12×28 inches at 4-foot centers, to support the cooling tower.



Using two ¾-yard buckets to help speed operations, a Bucyrus-Erie 22-B places the bulk of 530 yards of concrete during a 5½-hour pour on the Blue Valley Station of the Independence, Mo., power plant. Some 8,000 square feet of Symons prefabricated forms are being used on the job.

Light is regulated in new Seagram building

Matching the intensity of artificial light to daylight will be the function of an astronomical clock in the bronze Seagram tower building now under construction at 375 Park Ave., New York City.

The clock will register sunrise and sunset automatically, and light in the glass-sheathed lobby will brighten as the day gets lighter, or get dimmer as sunshine lessens, so that the same light level of sunshine will be maintained in the lobby of the whiskey distiller's building.

Six different areas of the street level lighting will be controlled by a dimmer created by The Superior Electric Co., Bristol, Conn. The dimmer will use six preset graduations, five for daytime and one for night, connected to a 24-hour clock that is governed by the astronomical clock. The changes from one graduation to another will be so gradual that they will not be detectable.

The light will serve two purposes—it will eliminate violent contrasts in light intensity between indoors and outdoors, and it will make lobby lighting blend with natural light to dramatize the entrance.

J. I. Case appoints two division directors

P. H. Spennetta has joined the engineering staff of the J. I. Case Co., Racine, Wis., as director of engineering for the Industrial Division, succeeding T. A. Haller. Spennetta was former chief of research and testing for the Caterpillar Tractor Co.

At the same time, Haller has been made head of Case's newly established research and development center in Racine. He will have over-all supervision of engineering for both the Agricultural and Industrial Divisions.

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A clear liquid which penetrates 1" or more into concrete, brick, stucco, etc., seals—hold 1250 lbs. per sq. ft. hydrostatic pressure. Cuts costs. Applied quickly—no mixing—no cleanup—no furring—no membranes. Write for technical data—free sample. HAYNES PRODUCTS CO., OMAHA 3, NEBR.

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Announces the JANUARY

'58 FORECAST

ISSUE

All of C&E's regular features PLUS FOUR BIG EXTRAS

1. '58 FORECAST

News and views by leaders in all segments of the construction industry focus attention on the vital issues for '58. These live interviews by C&E staff writers reflect the considered thinking of contractors, manufacturers, dealers and government officials throughout the nation.

2. PRODUCT PARADE FOR '58

Modern as the products it reports, this feature in C&E's big Forecast Issue describes the latest and the best items for '58. All product write-ups and listings of literature available are keyed for easy reader inquiry on post cards carried in every copy.

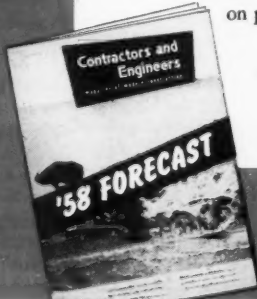
3. CONTRACTORS' PAY-ROLLS

Salary studies for contractors' supervisory personnel. Up-to-the-minute survey by C&E Research Staff is handy guide for '58 management control.

4. CONVENTION TIE-IN

January '58 C&E reaches readers shortly before three major industry meetings—ARBA, AED, and Sand & Gravel-Ready-Mixed Concrete Associations. The extra advertising carried gives unusually strong where-to-purchase value for readers.

● Last year 244 advertisers used display space in the columns of January C&E. Based on the editorial extras planned for this year an even greater volume of business is projected.



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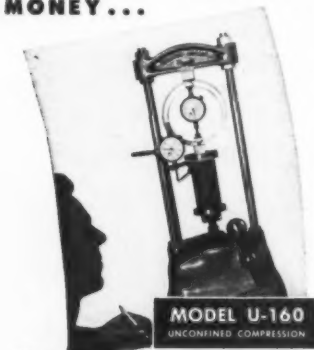
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testing...**

**ASSURES CONSTRUCTION
PERMANENCE... SAVES
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MONEY...**



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Norman, Craig & Kummel, Inc.			

90% of the Time . . .

You Can Use
This Time-Saving
Ellis Slip-In
Shore Holder!



EACH SLIP-IN SHORE ERECTION TAKES ONLY A FEW SECONDS

With Ellis Methods, simple inverted U-Shaped assemblies, each consisting of two Ellis Shores and a connecting purlin, are raised and braced. Then tremendous speed is gained by using slip-in shores between the two end shores. The purlin having a series of slip-in shore holders attached (see metal part in photo above), the shores are simply "slipped" into position. Old-fashioned methods of measuring, cutting, splicing, blocking and wedging are eliminated. Since frequently more than 90% of the shores used on a job are slip-ins, you can readily see that huge savings of time and money are offered by Ellis Methods.

From your plans, our engineers will work out complete suggested methods for top results.

Ellis

MFG. CO., INC. 211 N.W. 4th STREET
OKLAHOMA CITY, OKLA.

For more facts, use Request Card at page 18 and circle No. 396

BROWNHOIST BUILDS BETTER BUCKETS

— for less money DIRECT FROM FACTORY TO YOU



CLAMSHELL BUCKET



LOCOMOTIVE CRANE



COAL-ORE BRIDGE



ORE UNLOADER

ROPE REEVE, POWER WHEEL AND LINK TYPE

WRITE FOR ILLUSTRATED CATALOGUE
INDUSTRIAL BROWNHOIST CORPORATION

BAY CITY, MICHIGAN

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"I want to speak to you guys about your coffee breaks!"

Publisher's Postscript

The editors of CONTRACTORS AND ENGINEERS tell me that my picture has graced this column sufficiently for the time being, and I couldn't agree with them more. What better way to get back at them, however, than to turn the spotlight right on them one by one for the next several months. It seems to be high time for all our readers to get a glimpse of the men who actually produce this magazine.

Since there are nine full-time editors working on C&E, the job of Editor-in-Chief must be largely adminis-



Bill Quirk, editor

Likes the first YAUN... buys 5 more!



"Out-wears other buckets we've used 2 to 1," says Edwin Hoffman, Battle Creek, Mich.

"Seven years ago we bought our first Yaun. It handled hundreds of thousands of yards of material ranging from sandy, abrasive soil to stiff clay. Couldn't seem to wear it out, and it is still usable. Since then we've bought 5 more. We find them conservatively rated—they actually hold more than the advertised capacity. The essential wearing parts—chains, shackles, linkage, out-last other buckets we've tried by 2 to 1!" So reports Edwin Hoffman, partner, Hoffman Bros., Battle Creek, Mich., earthmoving contractors.

All muscle—no fat—that's the Yaun bucket! Yauns are all-welded for maximum strength, minimum dead weight.

They're built stronger with heavier castings—and wear longer because of manganese steel wearing parts and hard-faced lip surfaces. They dig and dump fast and clean because of their perfect balance.

Sold by leading construction equipment distributors everywhere.

Yaun Manufacturing Co., Baton Rouge, Louisiana

TAPERED 3 WAYS
for faster digging,
cleaner dumping

FRONT
TO BACK



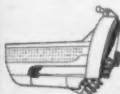
TOP TO
BOTTOM



SLOPING
FLOOR



YAUN



DRAGLINE
BUCKETS
($\frac{3}{4}$ to 40
cu. yd.)



CLAMSHELL
BUCKETS
($\frac{1}{4}$ to 3
cu. yd.)



CONCRETE
BUCKETS
($\frac{1}{2}$ to 2
cu. yd.)

THE BUCKET THAT'S BUILT TO LAST!

trative. But in Bill Quirk, who has filled the job since 1952, we have a head for the department who worked up the hard way through field editing and reporting over an eight-year period starting when he joined us in 1944.

Bill Quirk is never happier than when he can flee from his desk and get out on the job again with camera and notebook. His total article count is close to nine hundred. In covering so many jobs he has won a host of friends all over the Eastern half of the country, and his convention contacts (ASCE, AGC, ARBA, AASHO, etc.) furnish him with a growing number of friends and ear-to-ground correspondents in the West, also.

Bill is a graduate of New York University and had prior experience in railroad, public utility, highway, and industrial construction before joining C&E. He is blessed with a wife, two daughters and a son, and resides in St. Albans, Long Island.

One personal item about Bill, which he will probably delete unless proof sheets of this page are hidden from him: a non-smoker himself, he is concerned about the health of those who do smoke cigarettes. Consequently, he carries on a continuing crusade among his department members. The score over a five-year period is approximately five converts, and 15 who if anything are worse butt fiends than before they came under his influence. However, he carries on in all sincerity, and even sends occasional clippings of warning to ex-C&E staffers now working for competing magazines.

There's a special feature coming up in December C&E—a series of six related articles on the gigantic Upper Colorado Basin project. Since the entire coverage of this job was carried out single-handedly by Western Editor Ralph Monson, it will be a pleasure to turn the publisher's spotlight on him in this column next month.

Don Battenheim

PUBLISHER

CONTRACTORS AND ENGINEERS

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PUBLISHED BY
ENGINEERS



High altitudes, narrow benches severely test this Michigan, yet every day it loads **400 tons of rock weighing 5,400 lbs per cu. yd.**

Up in the scenic Sapphire Mountains of southwestern Montana, Cummings-Roberts Company has one of the toughest rock-loading jobs you could find anywhere.

Part of the time, they blast and load coarse mountain-top granite . . . summer and early fall, they load fluorspar. No one needs to detail what a severe test the heavy, rough granite overburden gives to *any* loader. Fluorspar, however, is even worse. A heavy rock mineral, it weighs 5,400 pounds per cubic yard—over 850 lbs more per yard than in-bank granite (and 2,200 lbs more than pit-run gravel).

Proved by demonstration

Over the years, Cummings-Roberts has tried just about every kind of loader made. Last year to increase efficiency, their Michigan distributor, Miller Machinery Co., Missoula, suggested a Model 175A Michigan Tractor Shovel. "Frankly," Cummings-Roberts officials told them, "we don't believe *any* rubber-tire unit can load the stuff, much less do the work day in and day out. But we'll give it a try."

Result? John Taber, General Superintendent, wouldn't let them take the Michigan off the job.

Heaped loading assures proper blending

Today, the 133 hp 2¾ yard Michigan handles *all* loading of the super-heavy fluorspar. Produc-

tion, with trucks on 600 ft one-way hauls to crushing mill, averages 400 tons per 7-hour day. The fluorspar, incidentally, varies considerably in grade from place to place throughout the mine. It must be blended to give the grade desired for shipment . . . and this assignment goes to the Michigan, too. Its 27 mph mobility is a vital asset on this scattered loading; trucks never wait more than a few minutes for loading service.

Strips granite overburden — 500 tons per day!

In late autumn and sometimes in spring, the Michigan strips the granite overburden. Output averages 500 tons per 7-hour day.

Downtime negligible

With all this rugged loading of super-heavy material, plus repeated back-and-forth maneuvering on narrow benches, plus continuous work at high 7,000 ft altitudes, the torque converter equipped Michigan has posted an excellent mechanical record. *To date, it has had only one minor breakdown!*

Also tows compressors, speeds other odd jobs

Operator Don Lindblom likes Michigan's power-shift transmission, says its bucket action is the best he's ever worked with. "You can tip it back and fill it easily," he says. "I like the fact also that it takes

only half-an-hour per day to refuel and lubricate." Foreman Waino Lindblom adds, "The Michigan has done a very nice job for us! We particularly like its truck-like speed in moving from level to level and bench to bench." This mobility gives the Michigan some "spare time" to handle maintenance jobs scattered along some 15 miles of mountain roads—cleaning rock rubble off benches so trucks and wagon drills can get through . . . hauling air compressors . . . digging culverts . . . even plowing snow.

Got a tougher job than this?

There *may* be a tougher materials-handling job than loading granite and fluorspar . . . but we're willing to bet a Michigan Tractor Shovel can do it faster, better, at lower cost than any other machine. To prove it, your Michigan Distributor will be glad to arrange a demonstration at *your* convenience. *You pick the jobs.*

Michigan is a registered trade-mark of
CLARK EQUIPMENT COMPANY
Construction Machinery Division
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